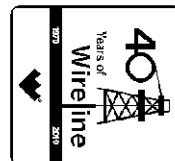




Weatherford

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG



COMPANY	O' BRIEN ENERGY		
WELL	VAIL #1-30		
FIELD	SINGLEY		
PROVINCE/COUNTY	MEADE		
COUNTRY/STATE	U.S.A./KANSAS		
LOCATION	760' FSL & 1320' FWL		
SEC	TWP	RGE	Other Services
30	33S	29W	MPD/MDN MAI/MFE
API Number	15-119-21277		
Permit Number			
Permanent Datum G.L., Elevation 2667 feet			Elevations:
Log Measured From K.B. @ 12 FEET above Permanent Datum			KB 2679.00
Drilling Measured From K.B.			DF 2678.00
			GL 2667.00
Date	07-DEC-2010		
Run Number	ONE		
Depth Driller	6351.00	feet	
Depth Logger	6354.00	feet	
First Reading	6351.00	feet	
Last Reading	1534.00	feet	
Casing Driller	1534.00	feet	
Casing Logger	1534.00	feet	
Bit Size	7.880	inches	
Hole Fluid Type	CHEMICAL		
Density / Viscosity	9.20 lb/USg	51.00 CP	
PH / Fluid Loss	9.50	9.20 ml/30Min	
Sample Source	FLOWLINE		
Rm @ Measured Temp	0.85 @ 75.0	ohm-m	
Rmf @ Measured Temp	0.68 @ 75.0	ohm-m	
Rmc @ Measured Temp	1.02 @ 75.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.52 @122.0	ohm-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	122.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13096	LIB	
Recorded By	SHAWN NUTT		
Witnessed By	ROGER PEARSON		
S.O.#/JOB#	3524634		PETER DEBENHAM LB10-312

BOREHOLE RECORD

Last Edited: 07-DEC-2010 19:46

Bit Size inches	Depth From feet	Depth To feet
7.880	1534.00	6354.00

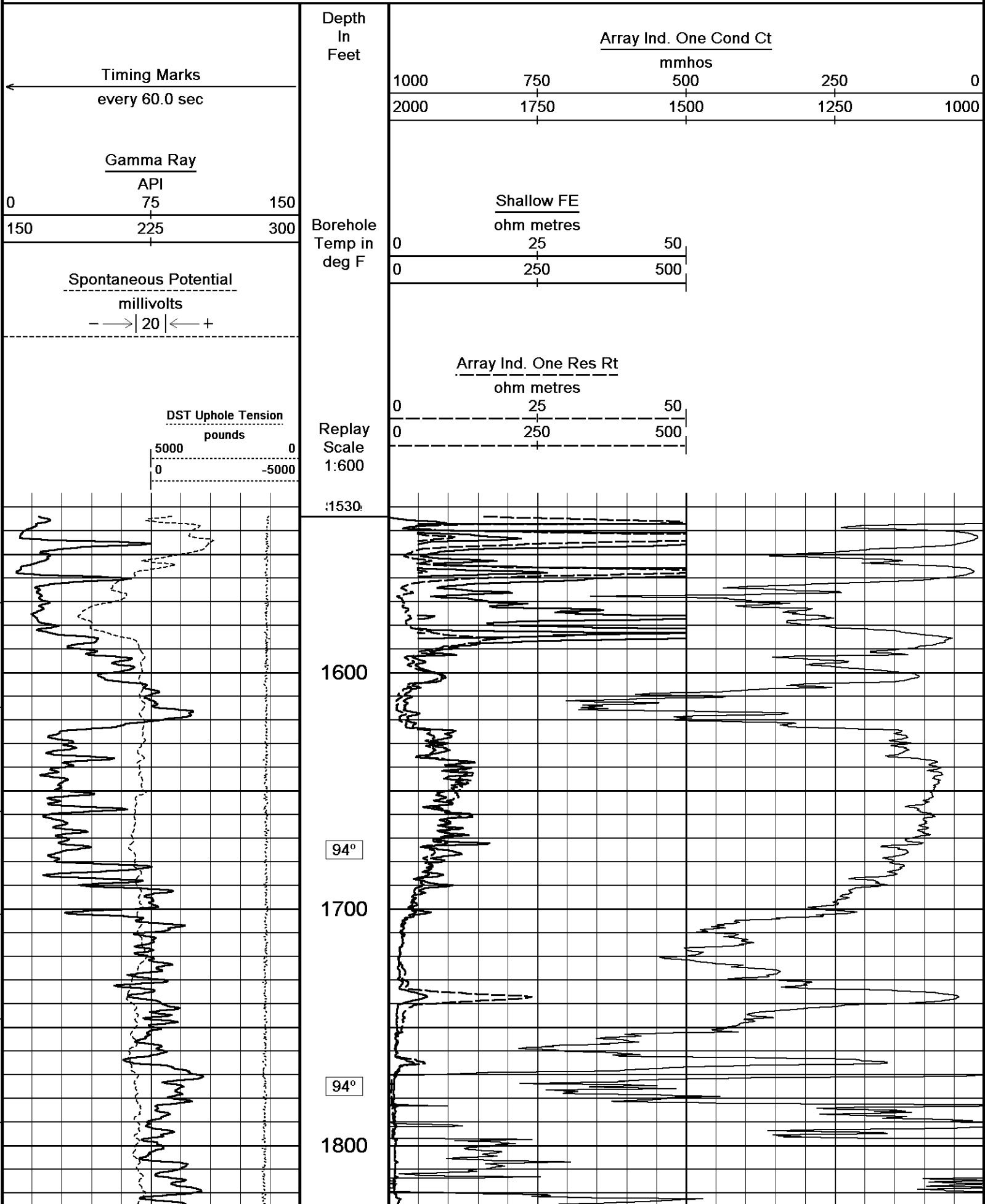
CASING RECORD

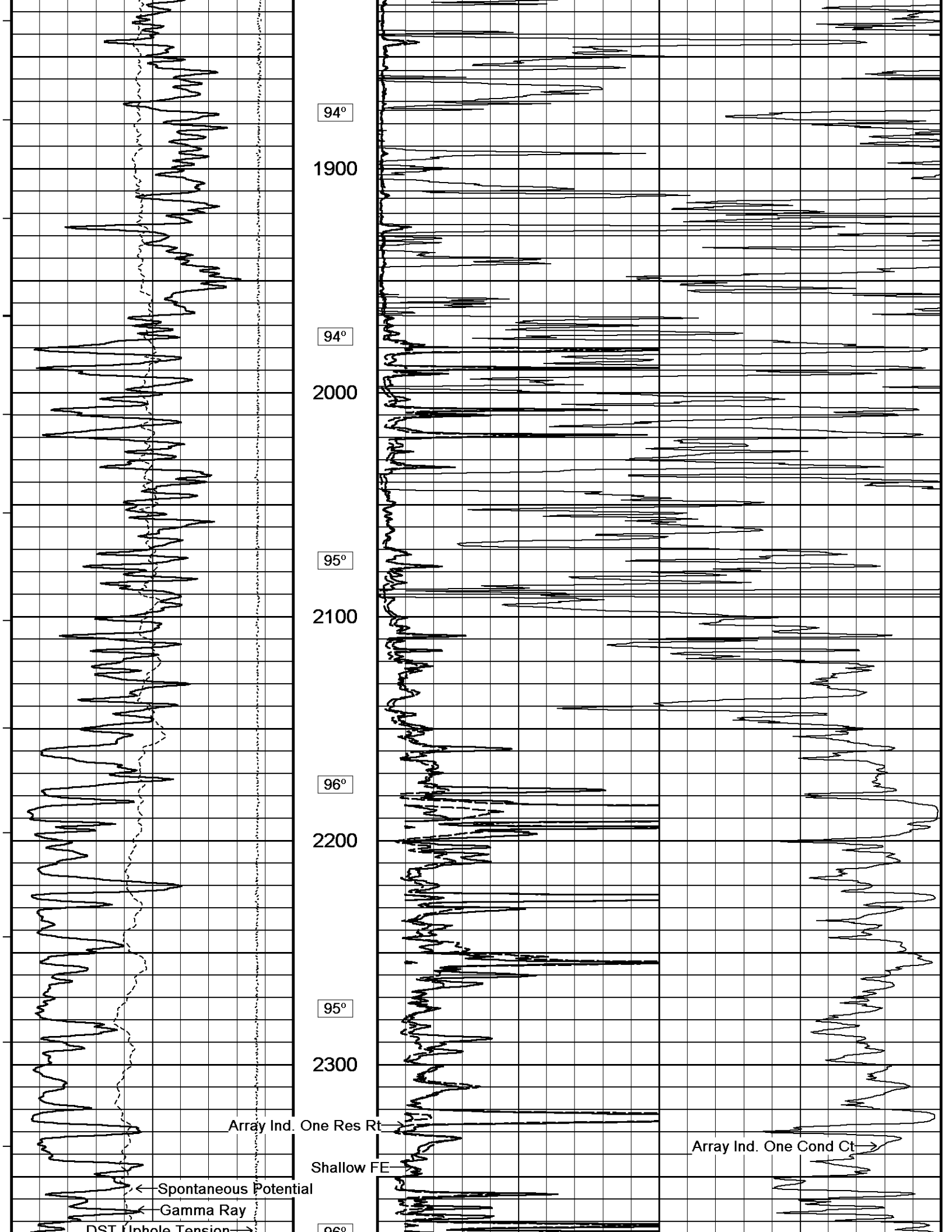
Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	1534.00	24.00

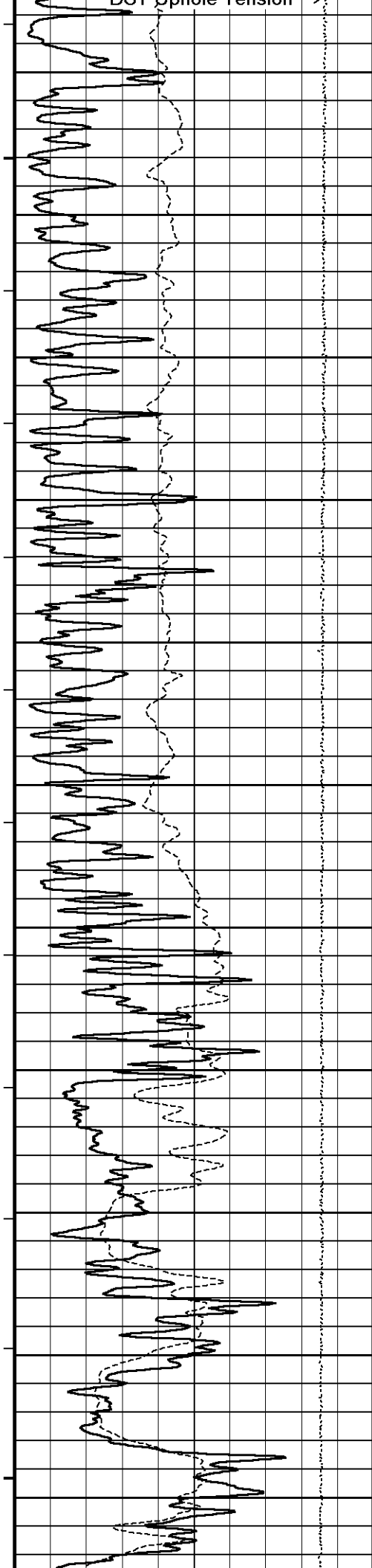
REMARKS

Tools Run: MAI, MPD, MCG, MDN, MML, MFE, SKJ
Hardware: MPD: 8 inch profile plate used. MAI and MFE: 0.5 Inch standoffs used. MDN: Dual Eccentraliser used.
2.71 G/CC Limestone density matrix used to calculate porosity.
Borhole rugosity, tight pulls, and washouts will affect data quality.
All intervals logged and scaled per customer's request.
Annular volume with 4.5 inch production casing= cu. ft.
Service order #3524630
Rig: Duke #6
Engineer: Shawn Nutt
Operator(s): K. Rinehart

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.







2400

96°

2500

97°

2600

97°

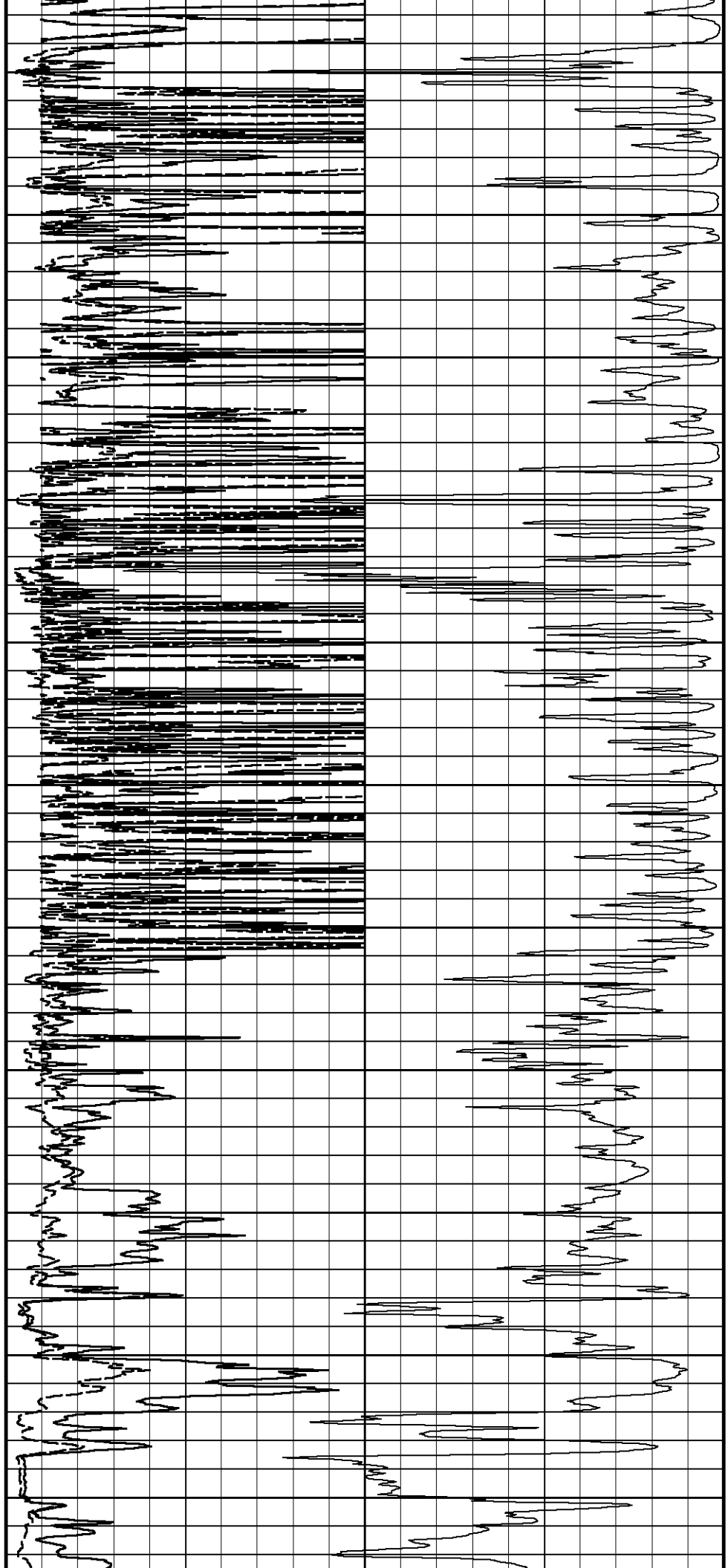
2700

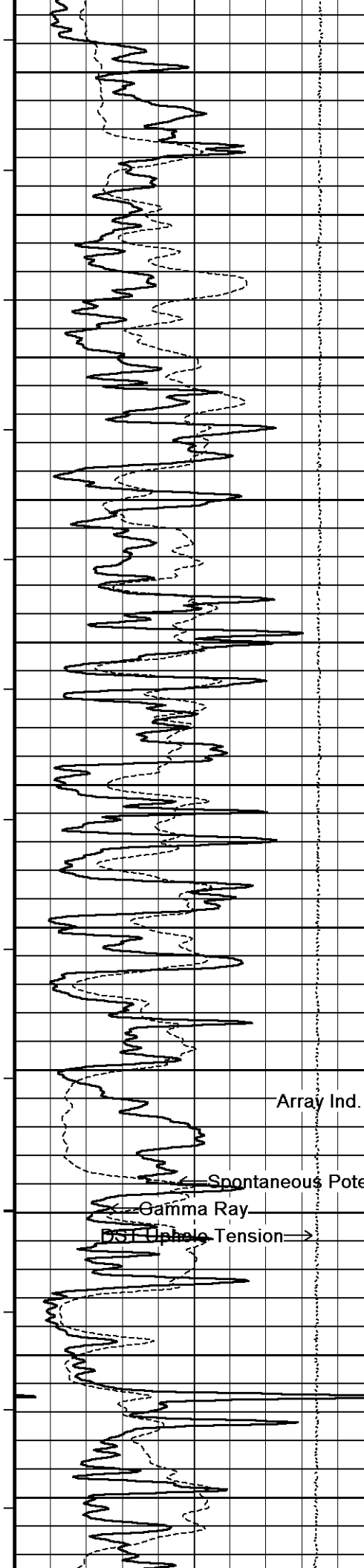
98°

2800

99°

2900





99°

3000

100°

3100

100°

3200

101°

3300

Array Ind. One Res Rt

Shallow FE

Spontaneous Potential

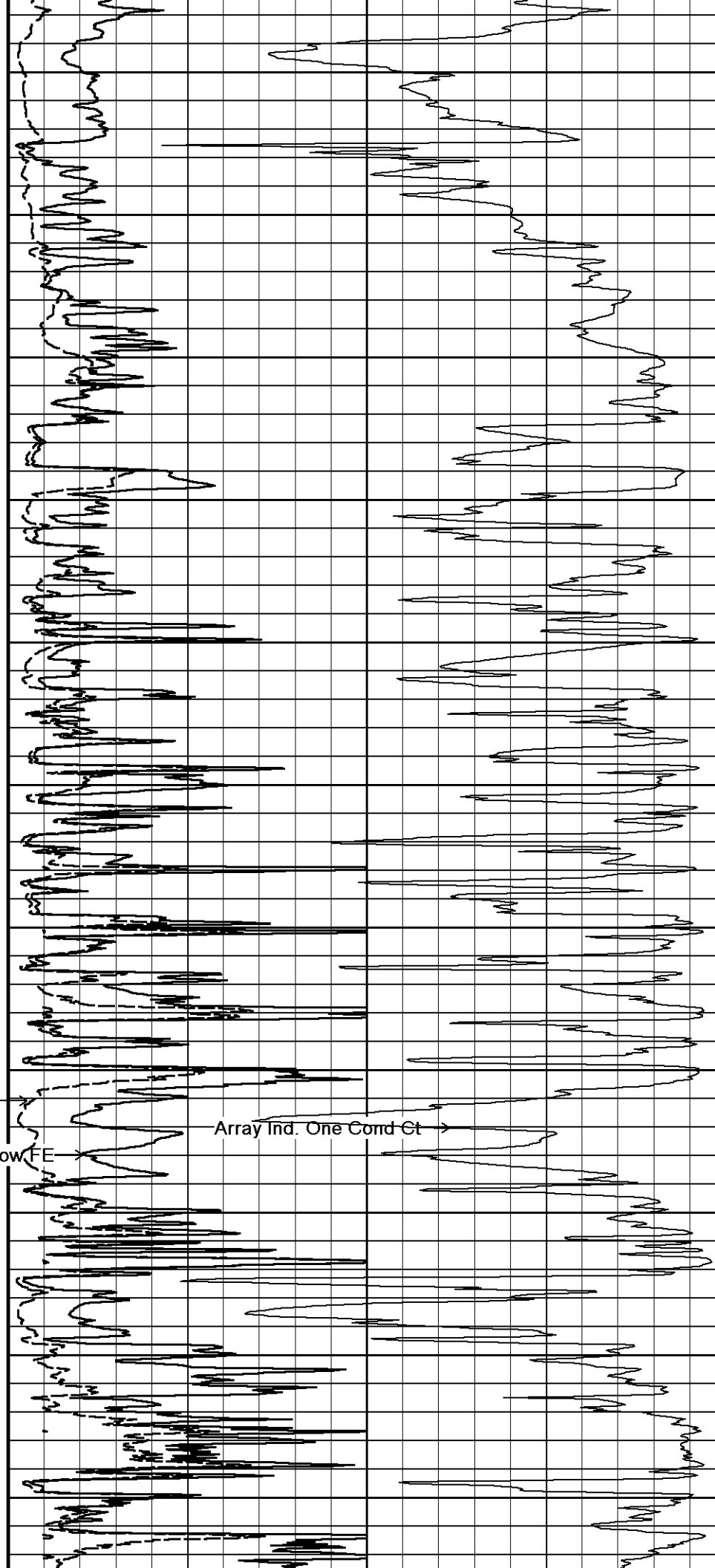
Gamma Ray

Pore Pressure

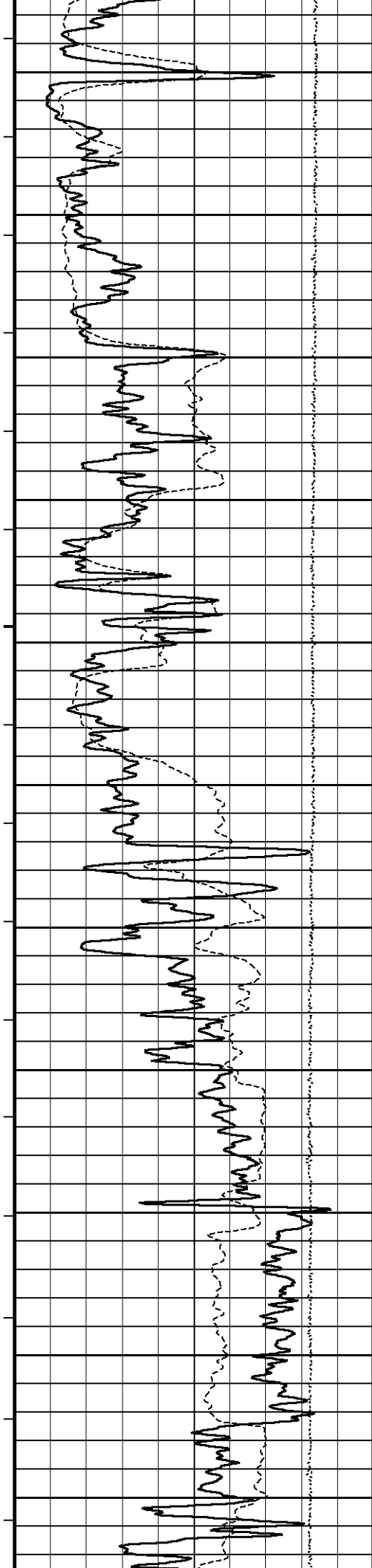
101°

3400

102°



Array Ind. One Cond Ct



102

103°

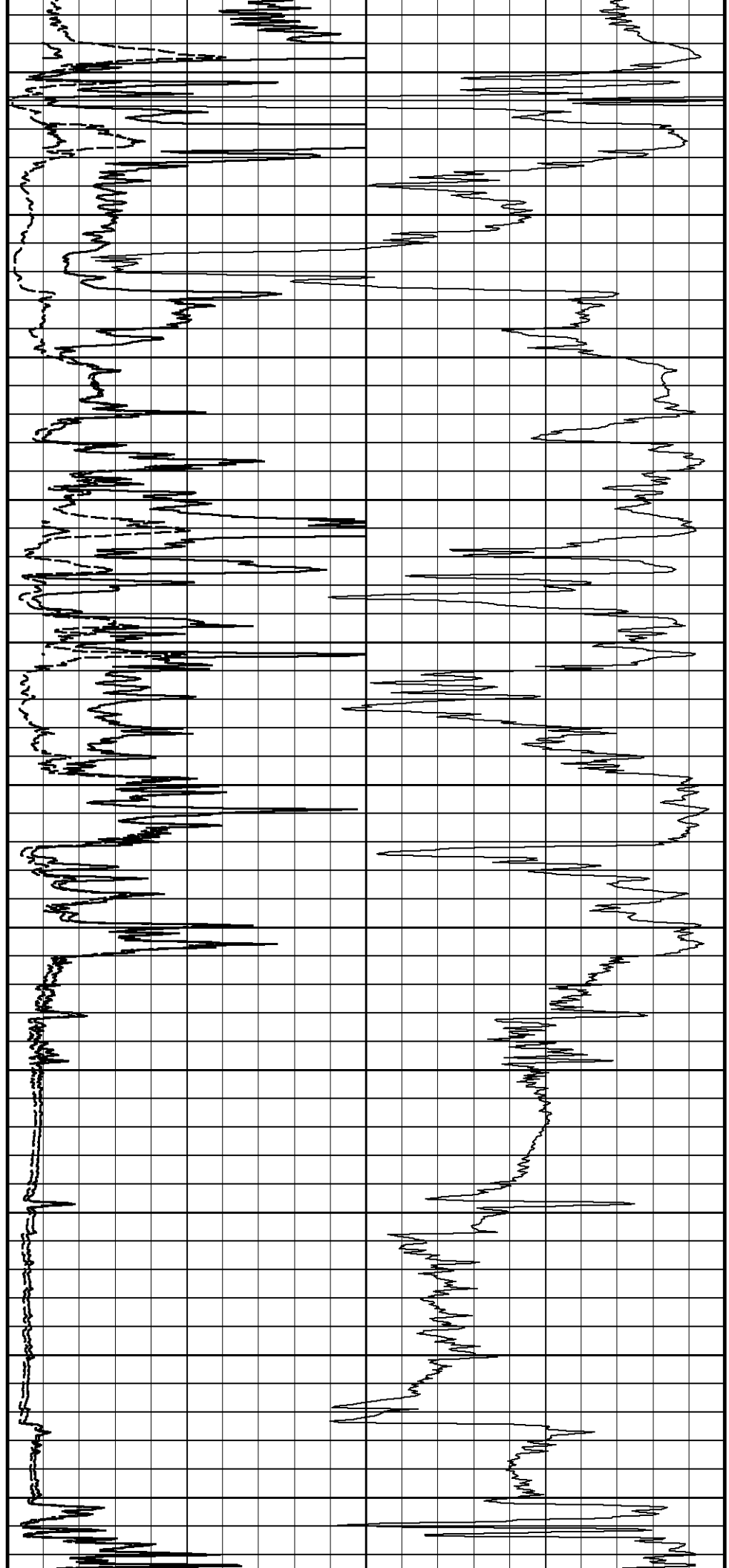
103°

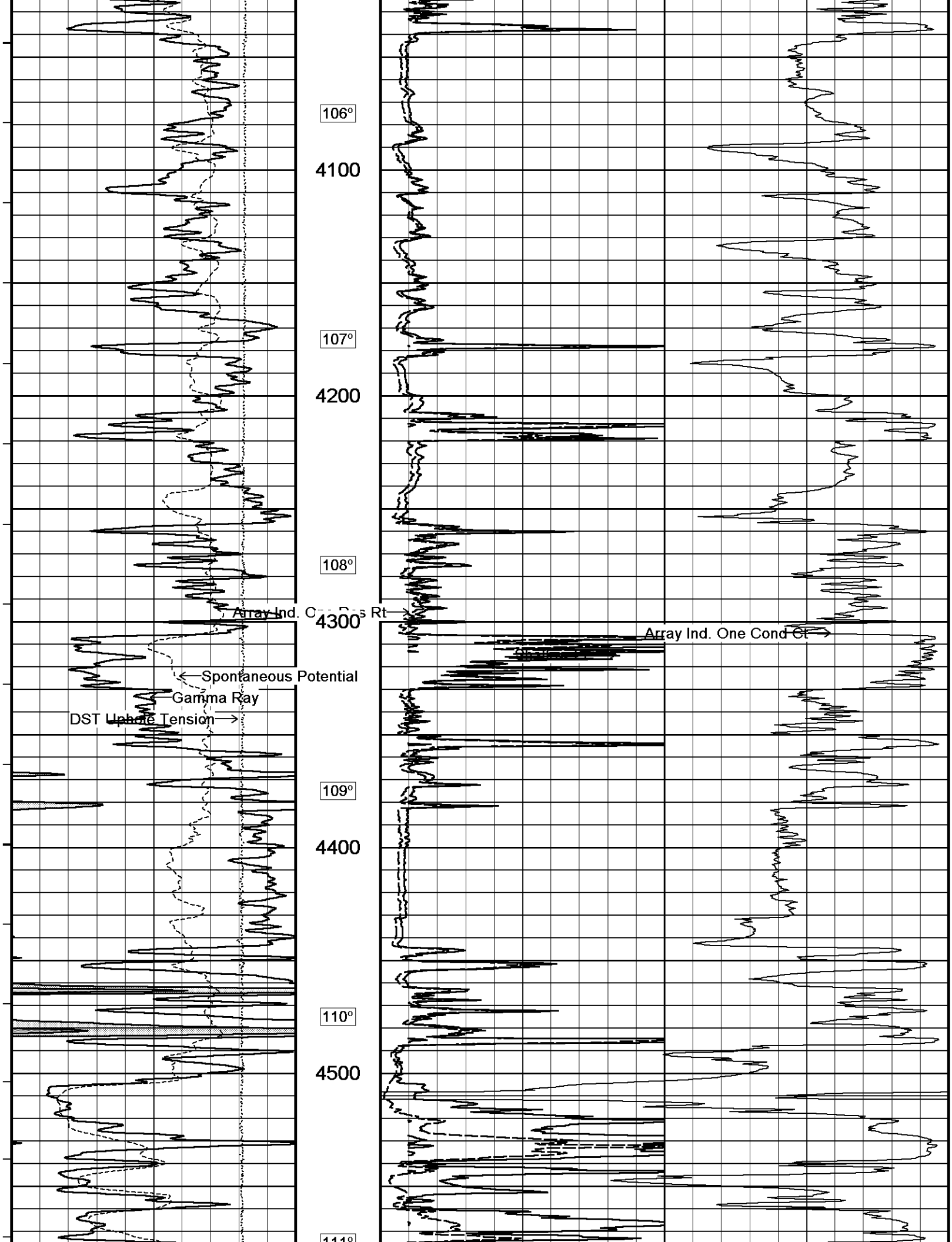
104°

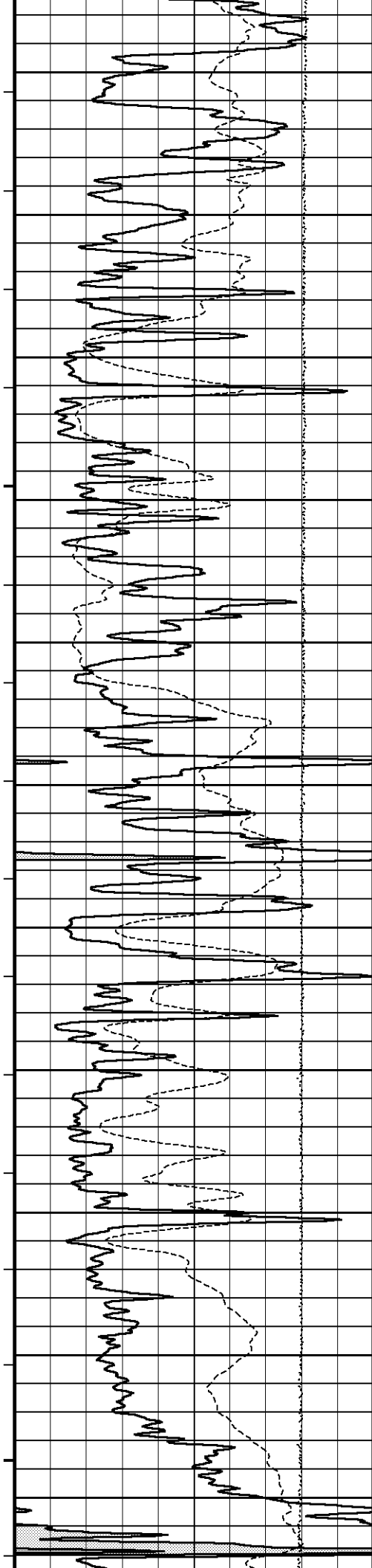
105°

105°

4000







111

4600

111°

4700

112°

4800

113°

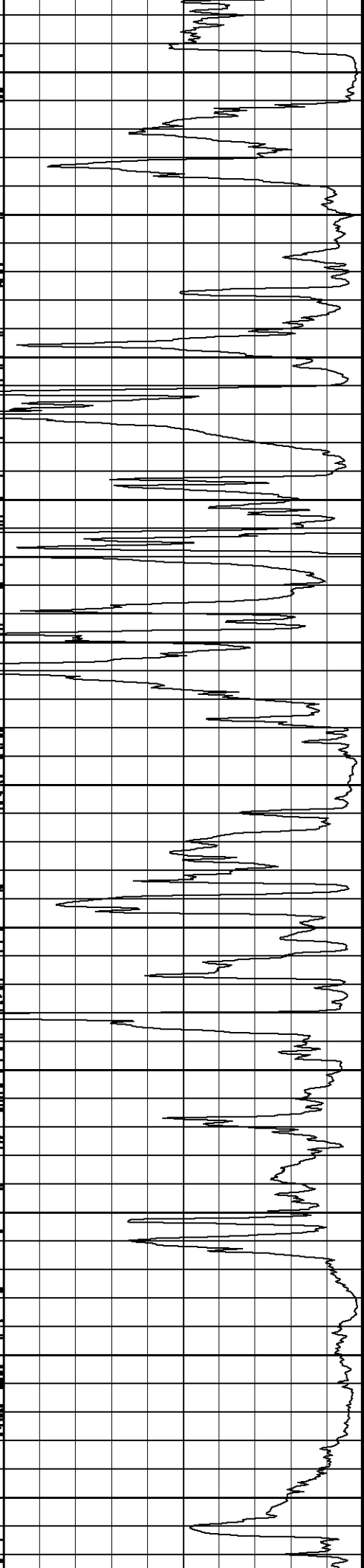
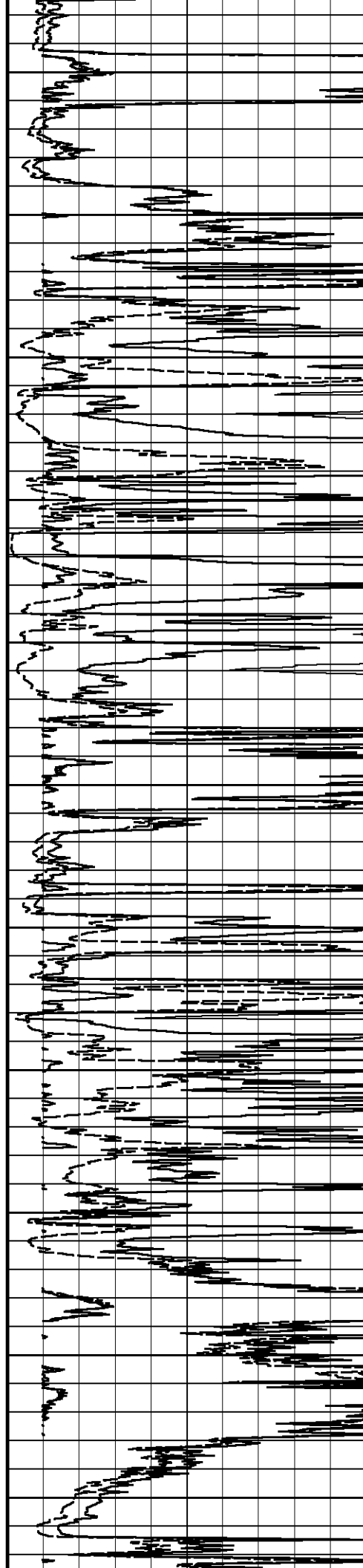
4900

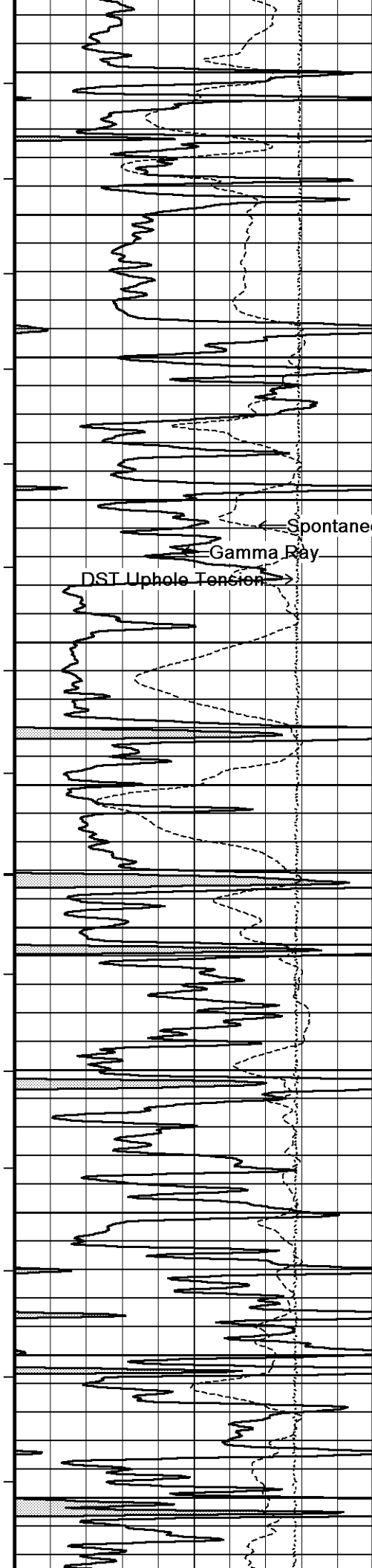
114°

5000

115°

5100





115°

5200

116°

5300

116°

5400

117°

5500

118°

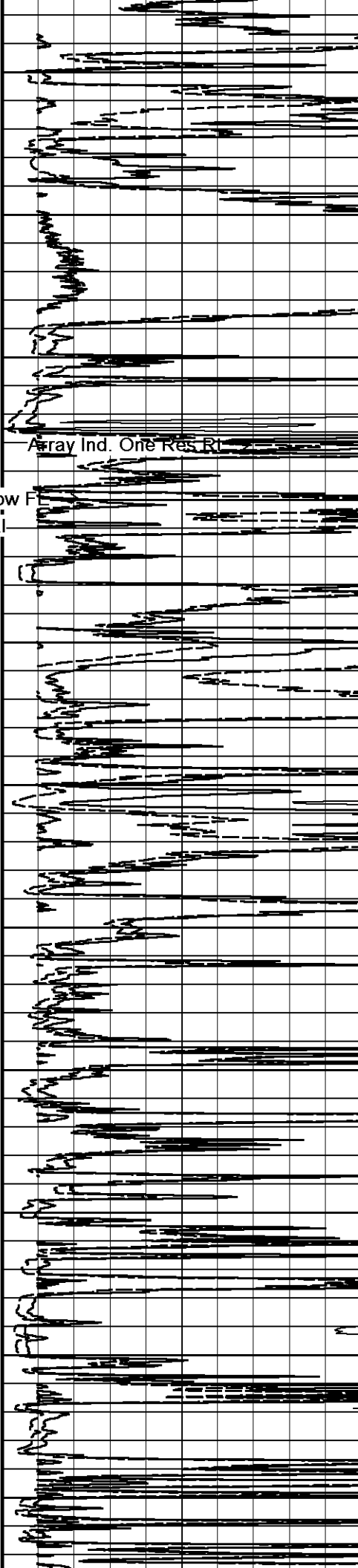
5600

119°

Spontaneous Potential

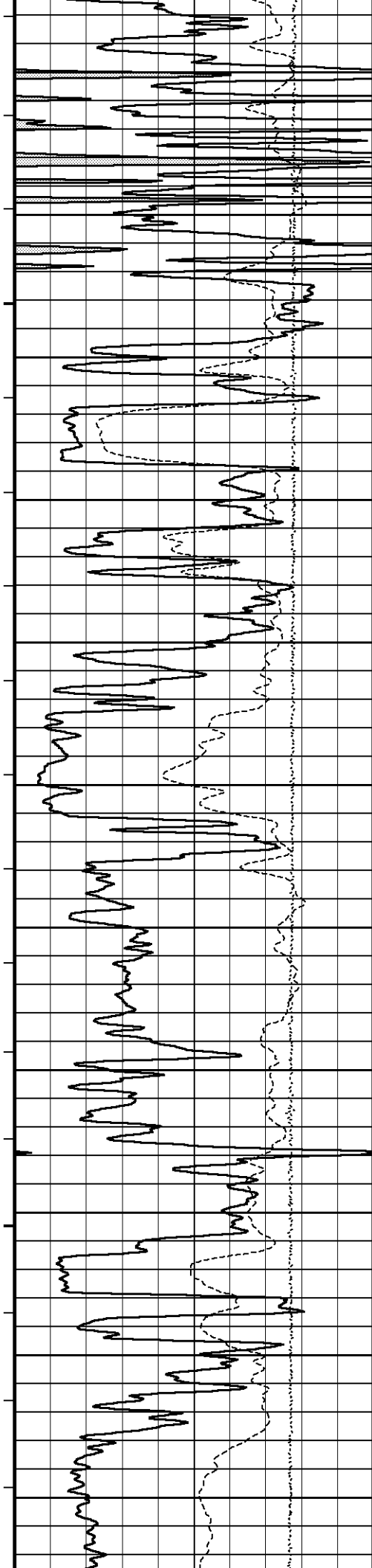
Gamma Ray

DST Uphole Tension



Array Ind. One Res Rt

Array Ind. One Cond Ct



119°

5700

120°

5800

119°

5900

120°

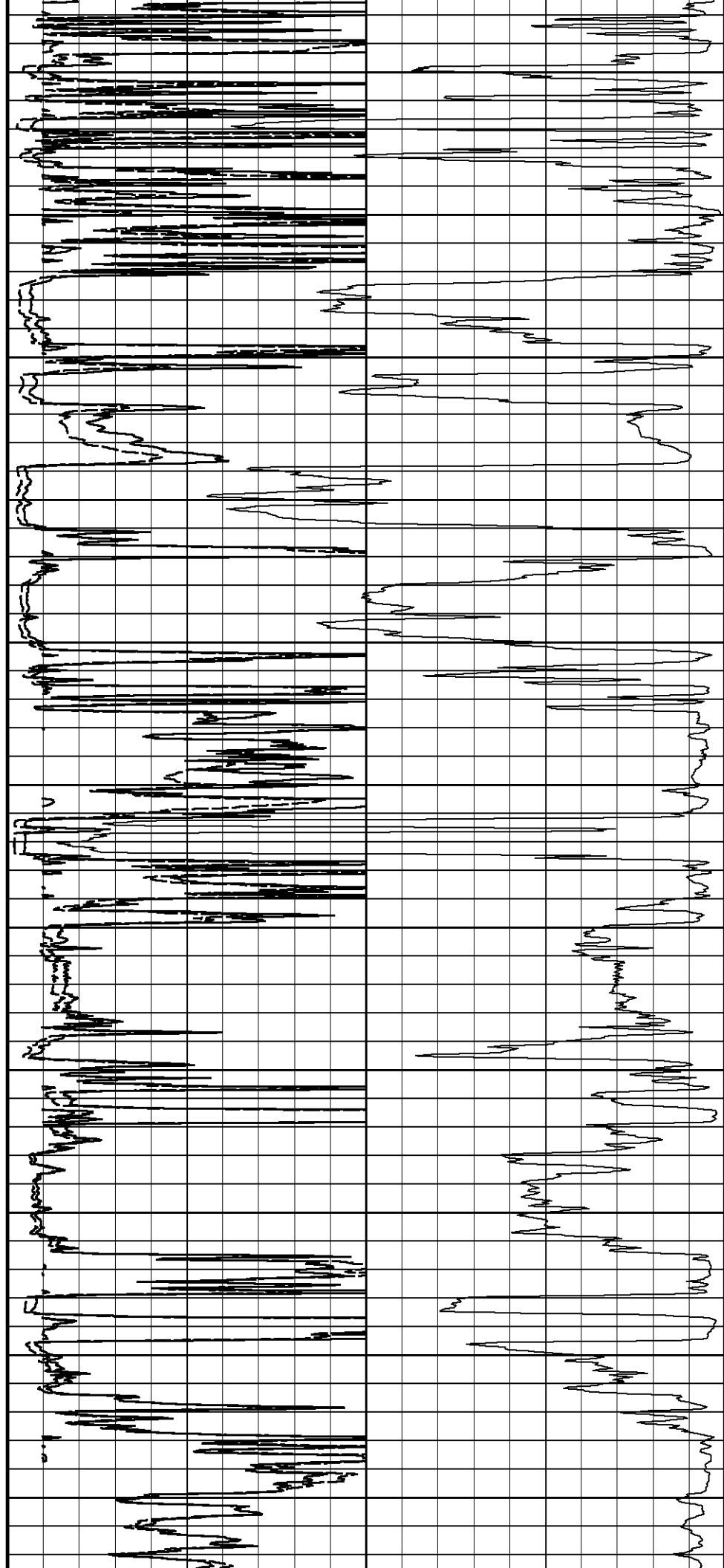
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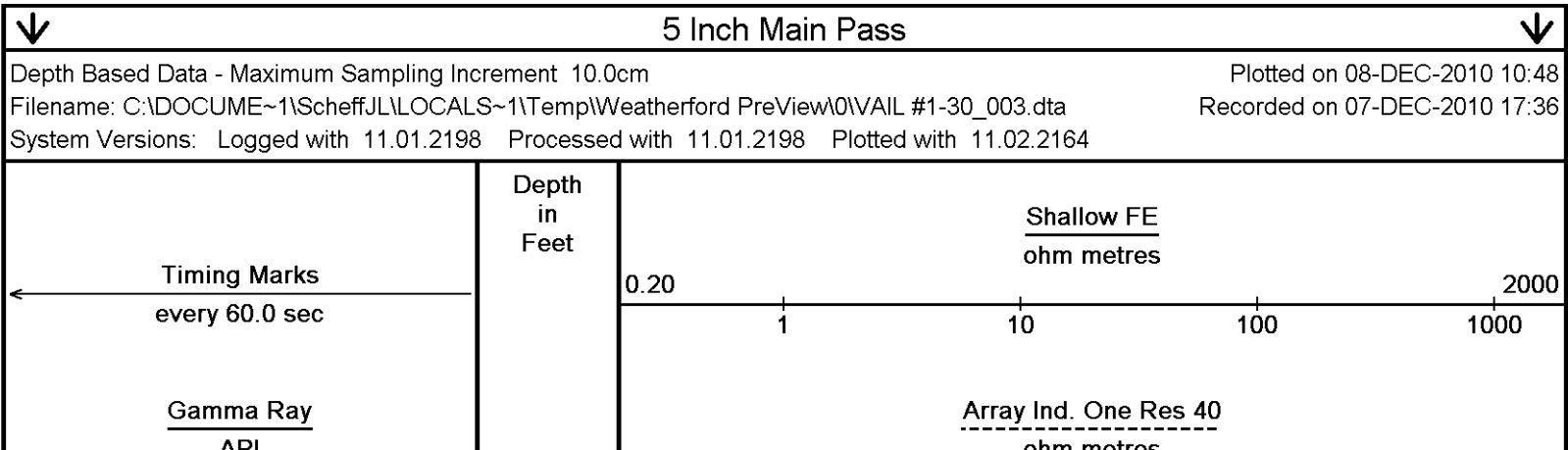
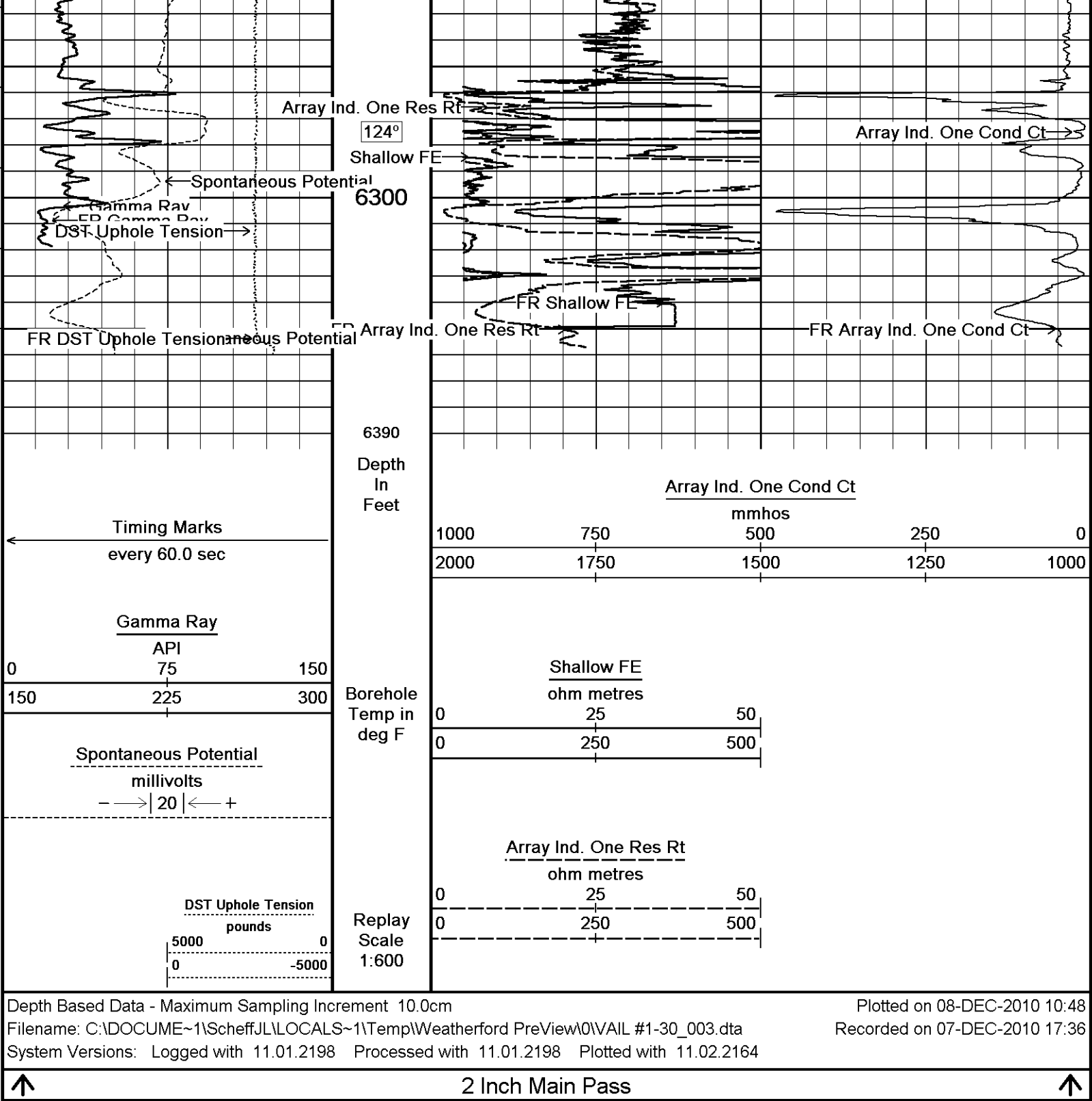
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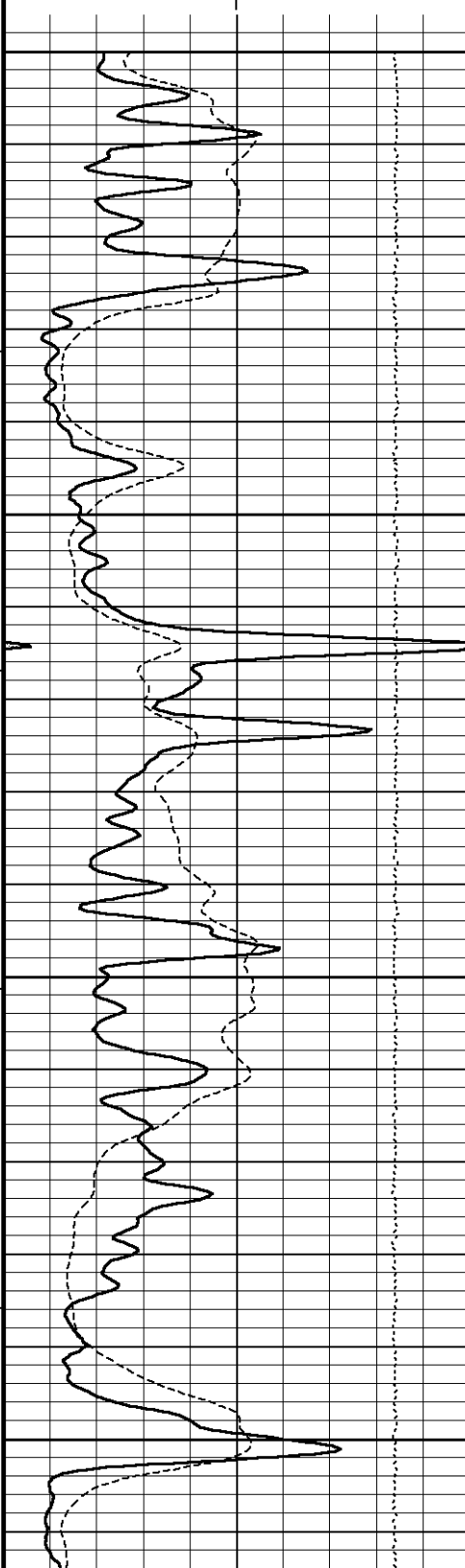
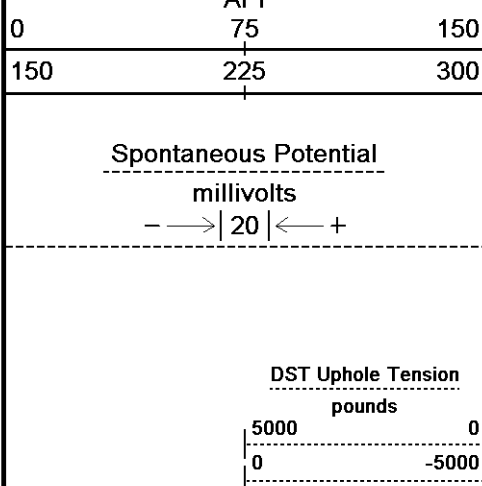
6100

123°

6200

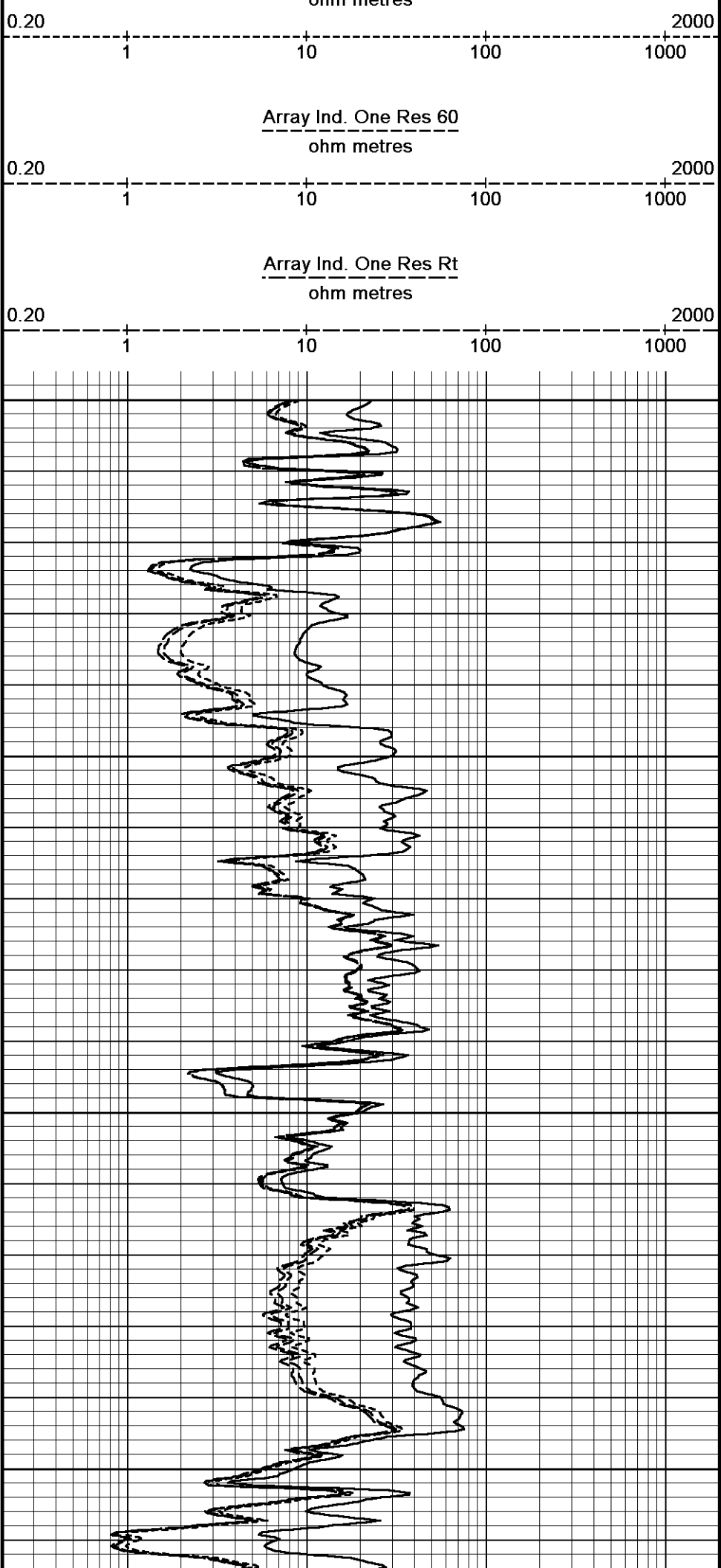


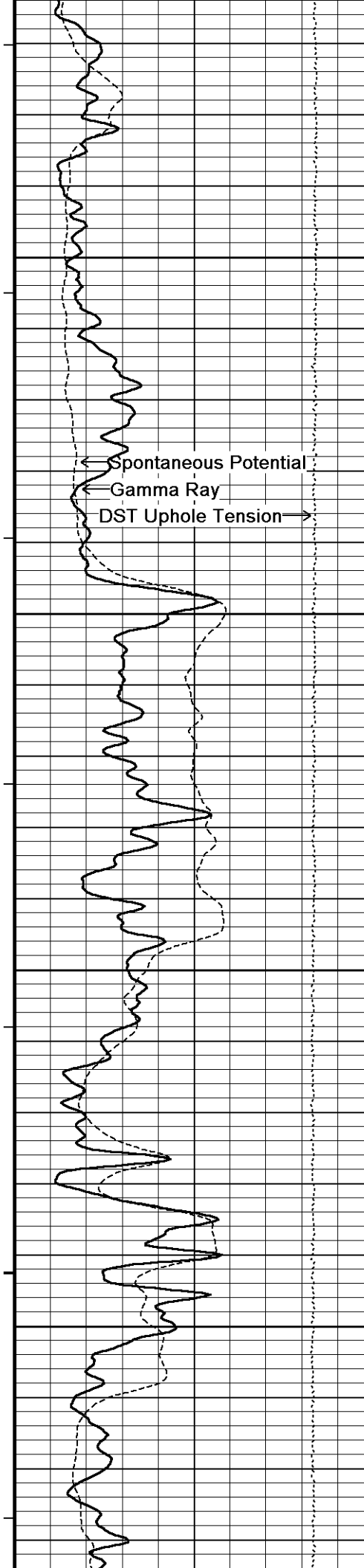




Borehole
Temp in
deg F

Replay
Scale
1:240





102°

3550

Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FE

103°

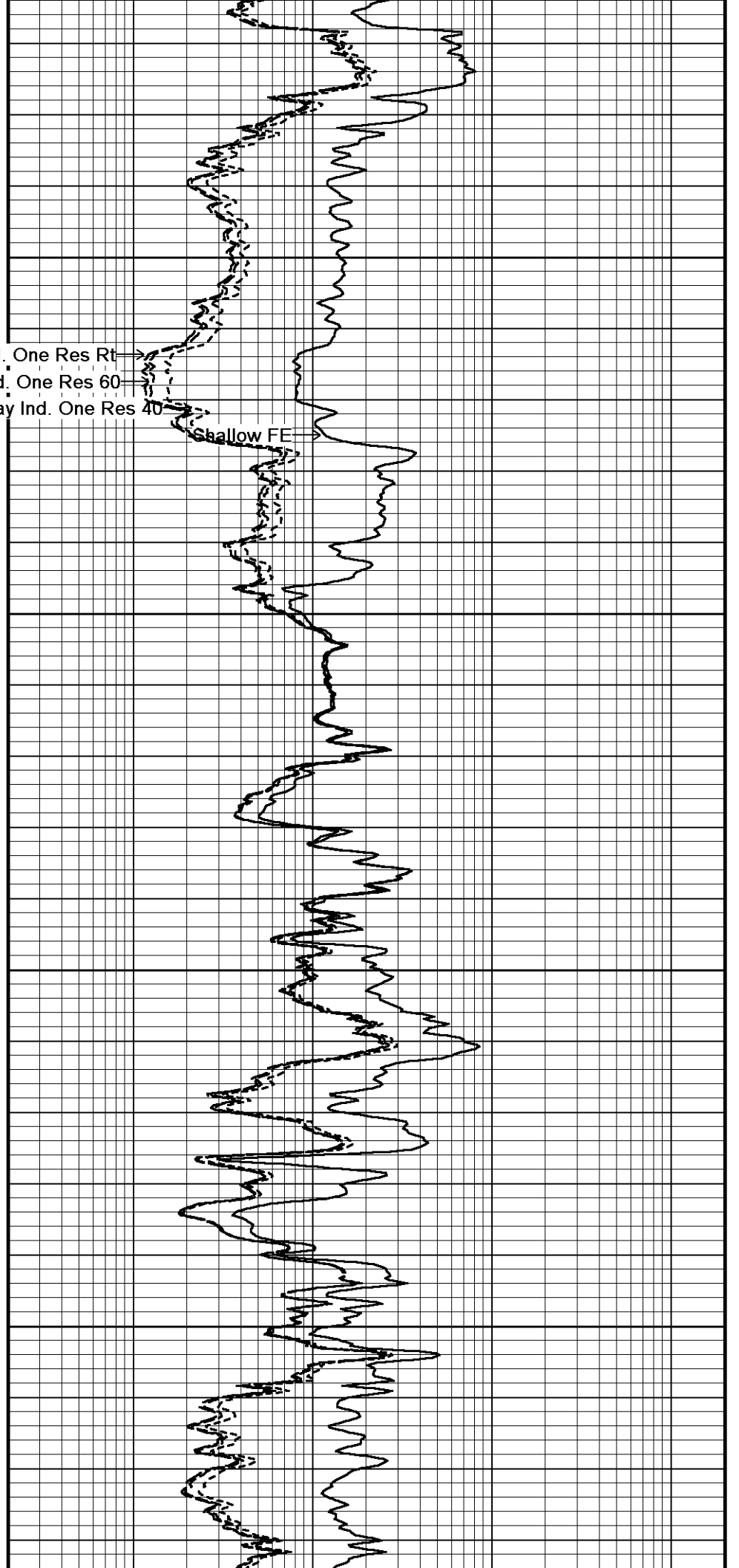
3600

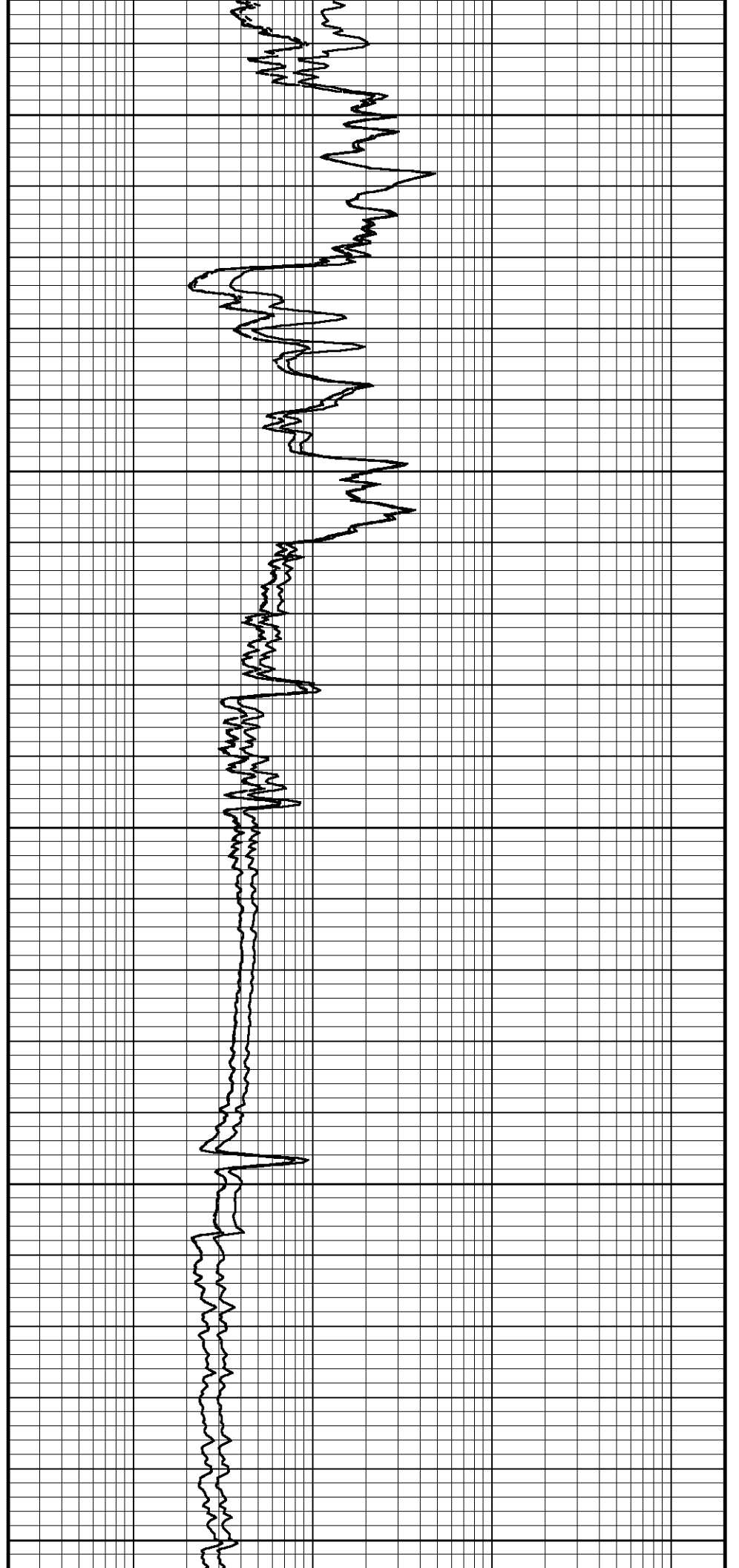
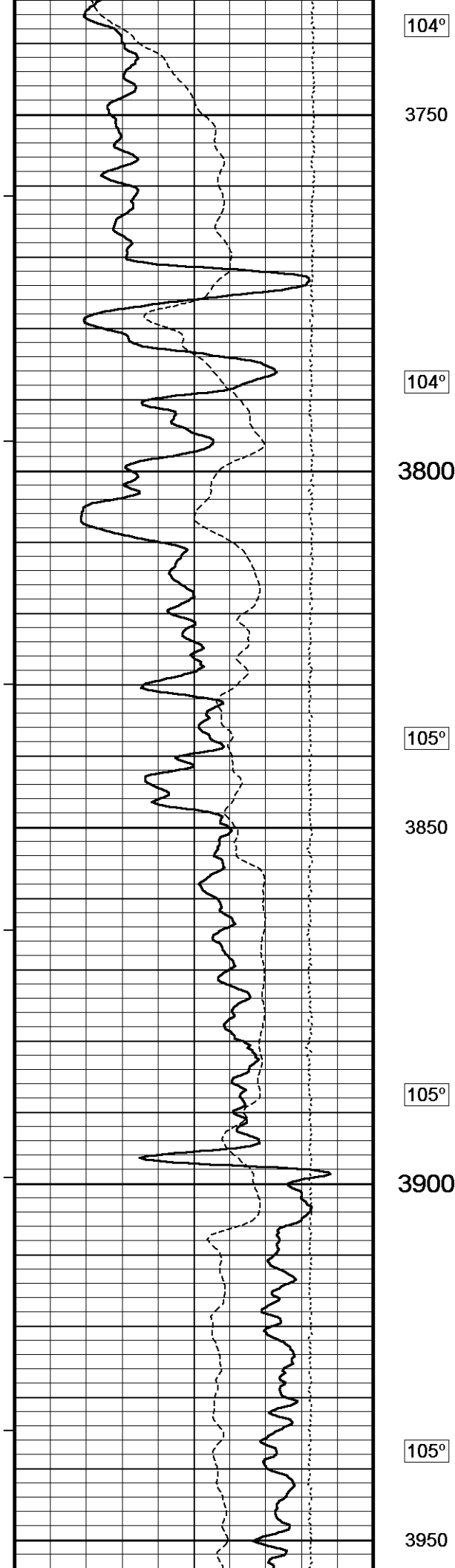
103°

3650

103°

3700





Array Ind. One Res Rt
Array Ind. One Res 60
Array Ind. One Res 40
Shallow F

Spontaneous Potential
Gamma Ray
DST Uphole Tension

106°

4000

106°

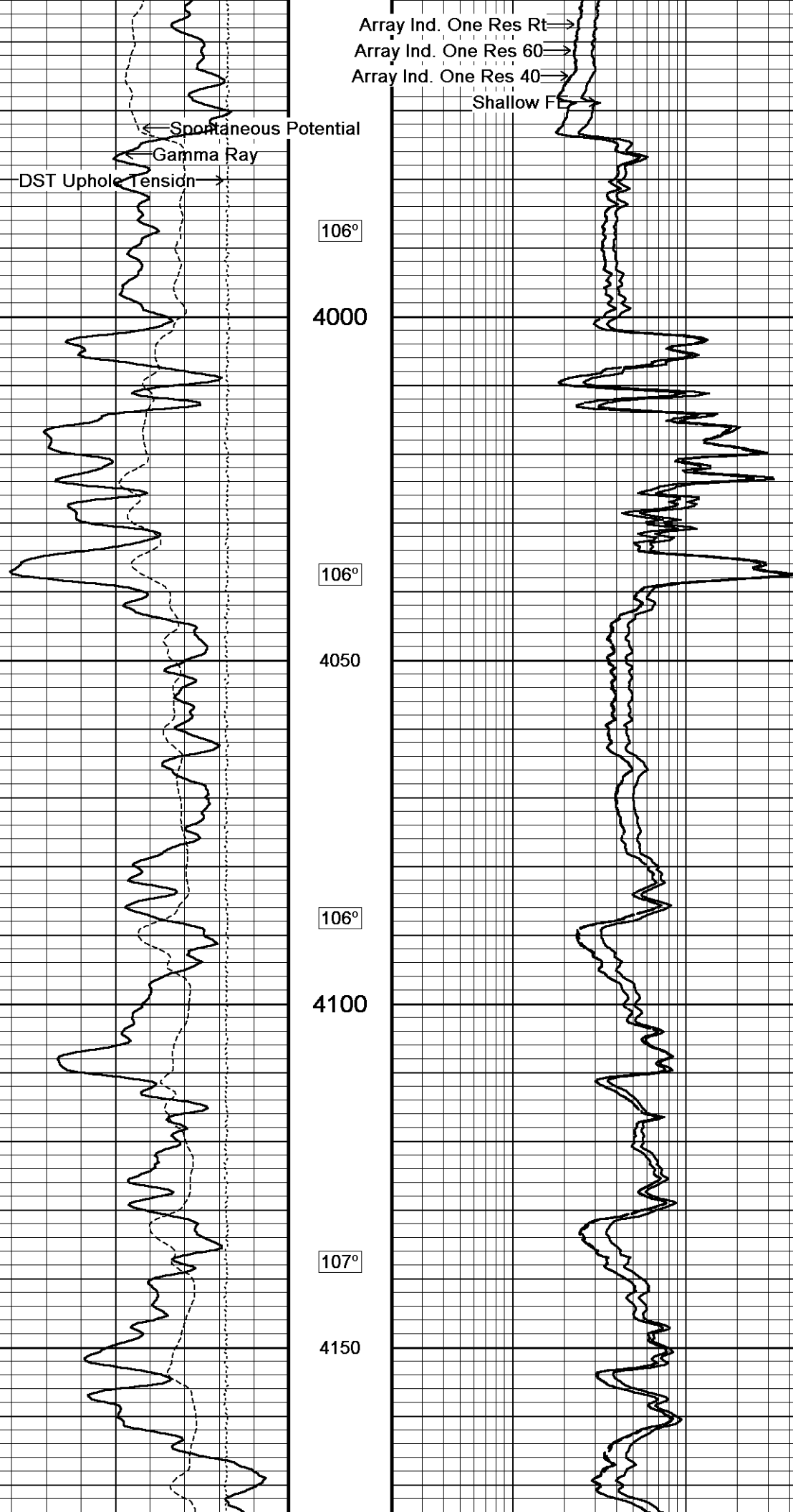
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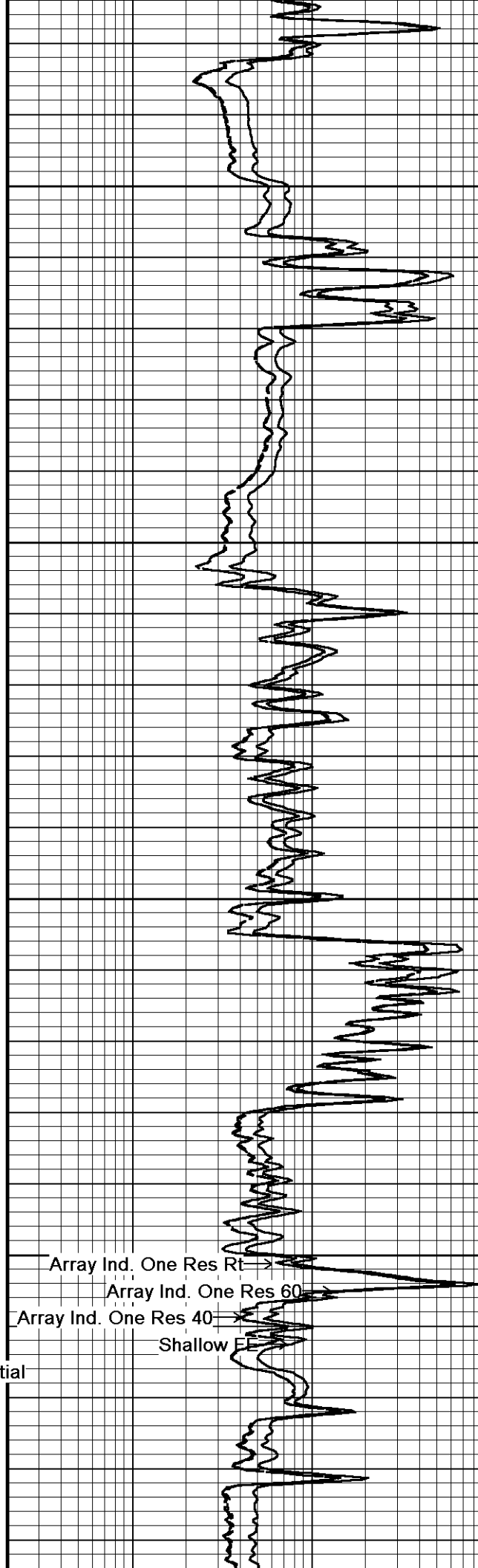
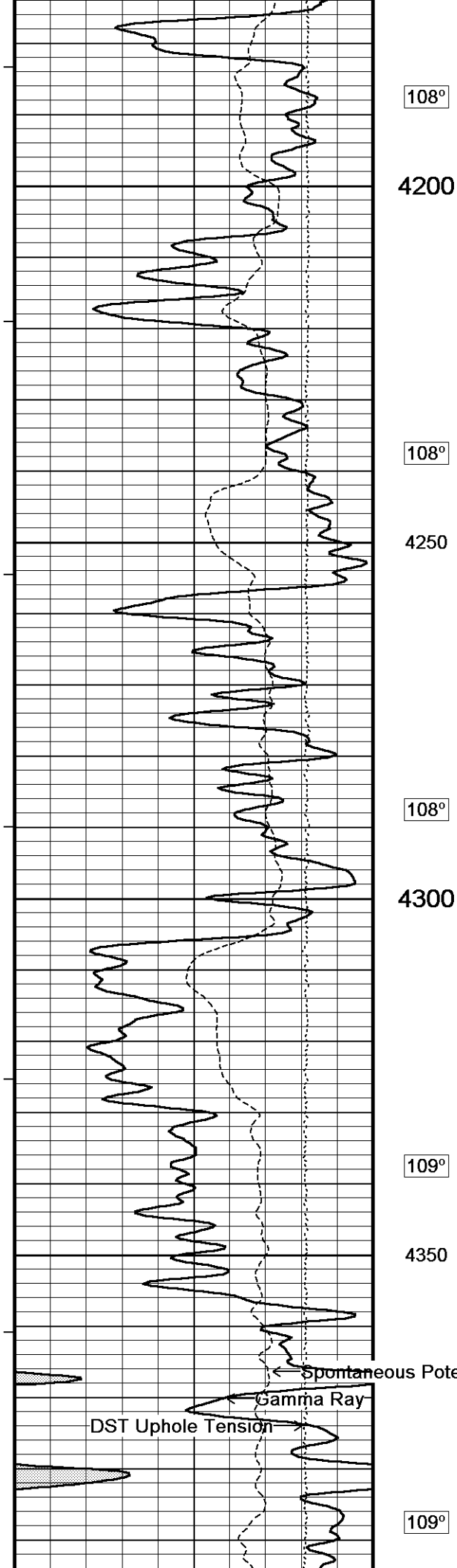
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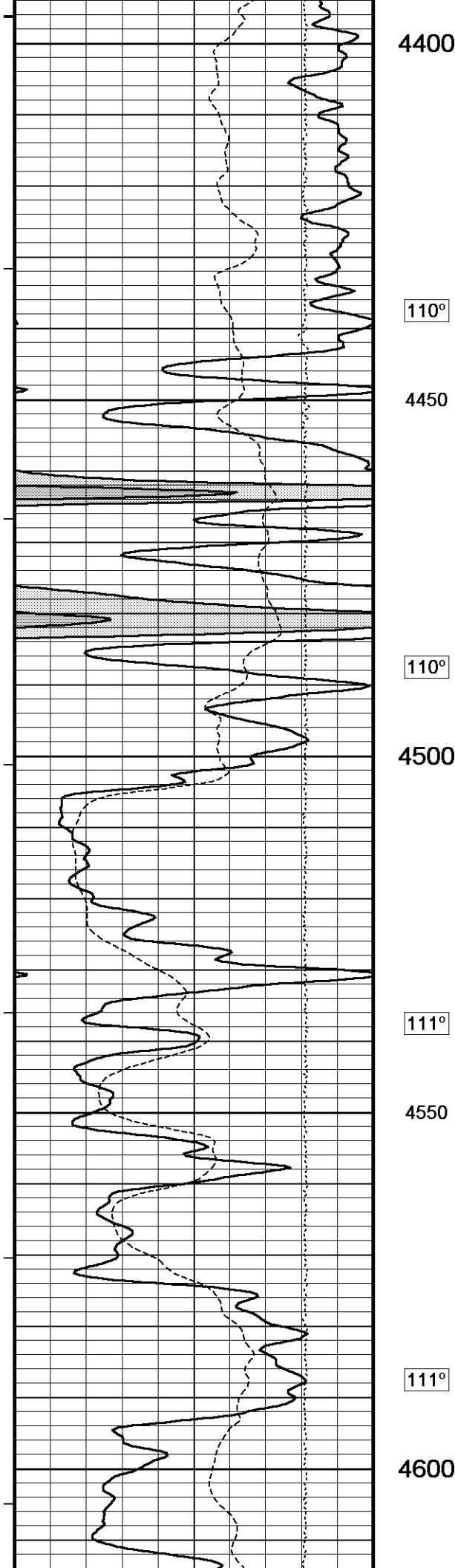
4100

107°

4150







4400

110°

4450

110°

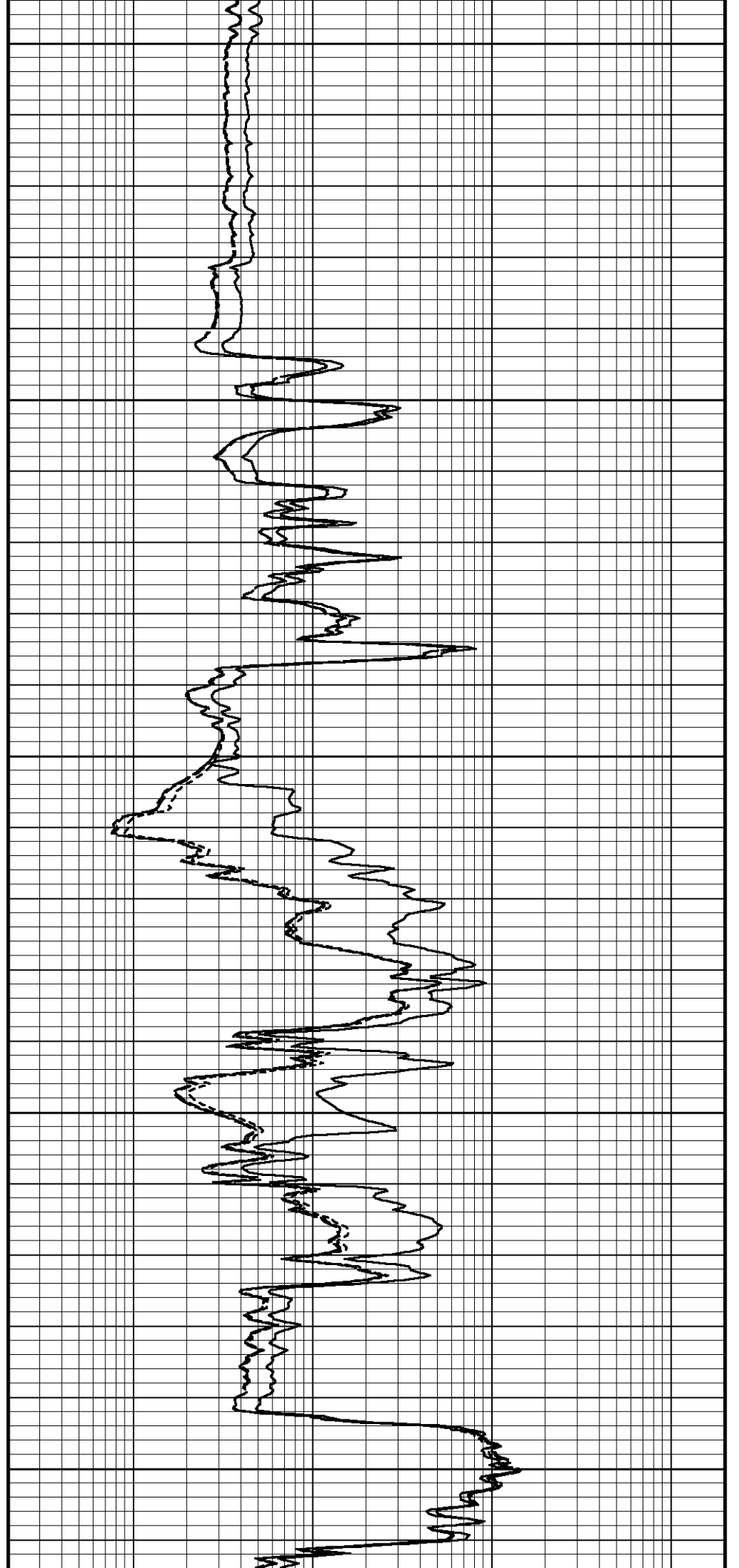
4500

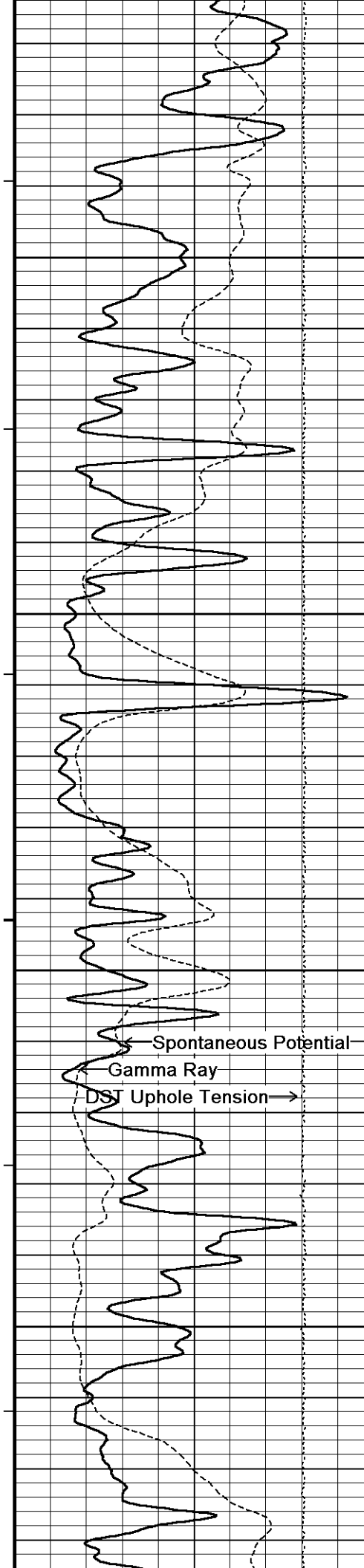
111°

4550

111°

4600





111°

4650

111°

4700

112°

4750

112°

4800

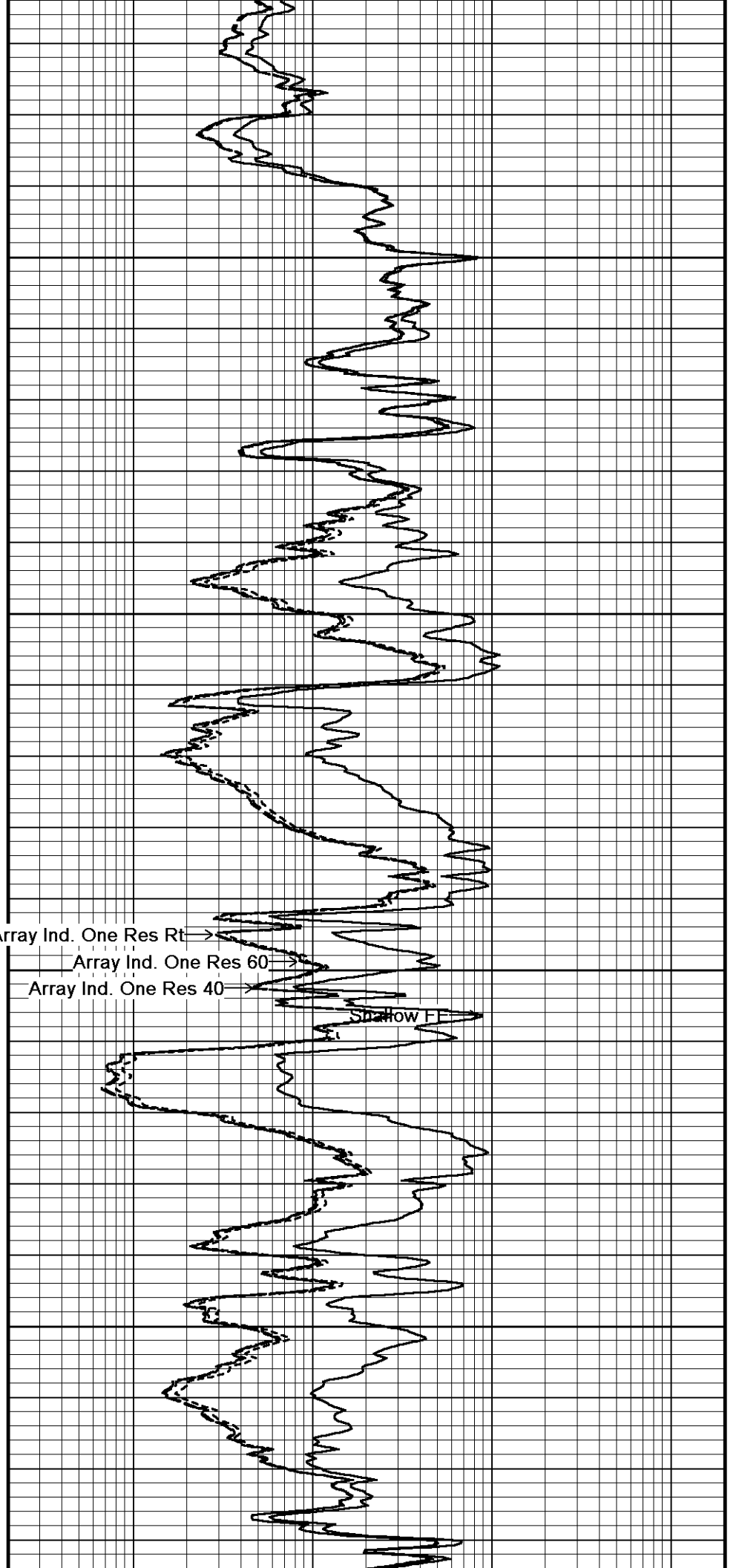
← Spontaneous Potential
Gamma Ray
DST Uphole Tension →

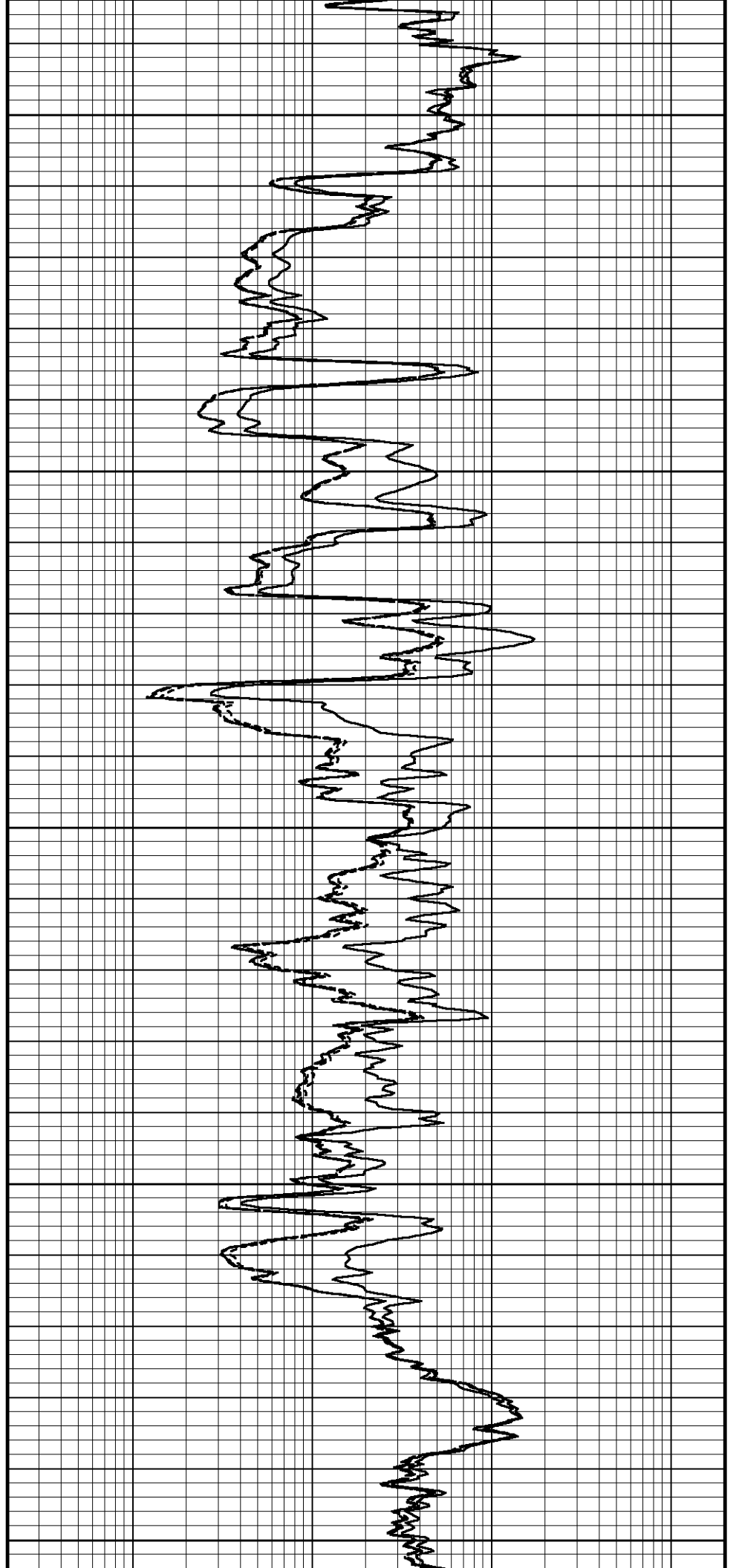
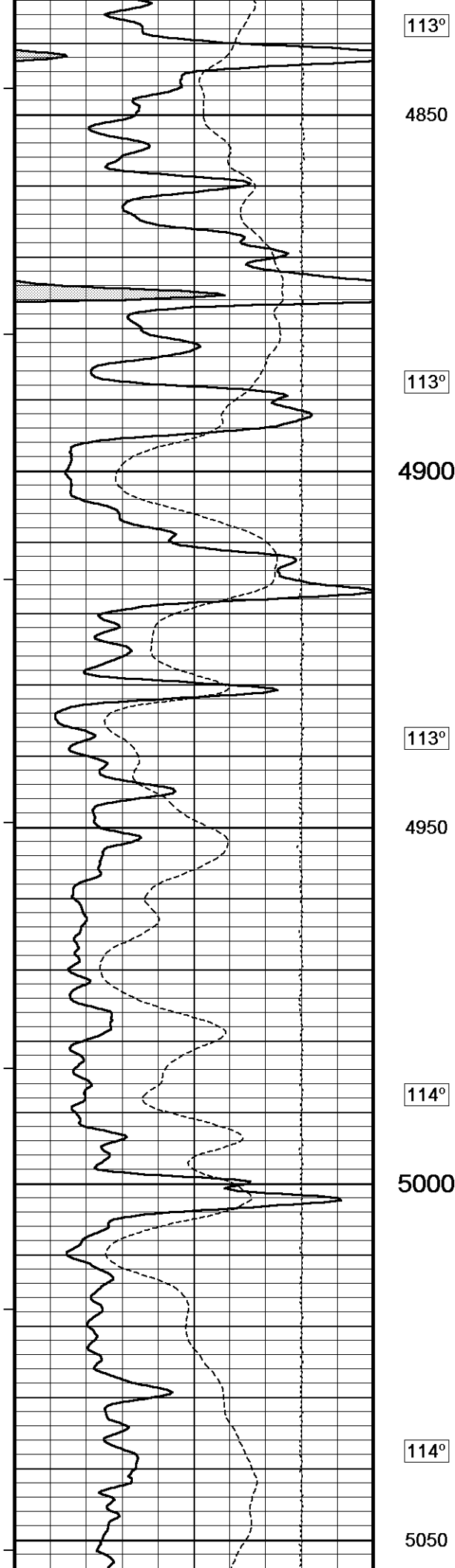
Array Ind. One Res Rt →

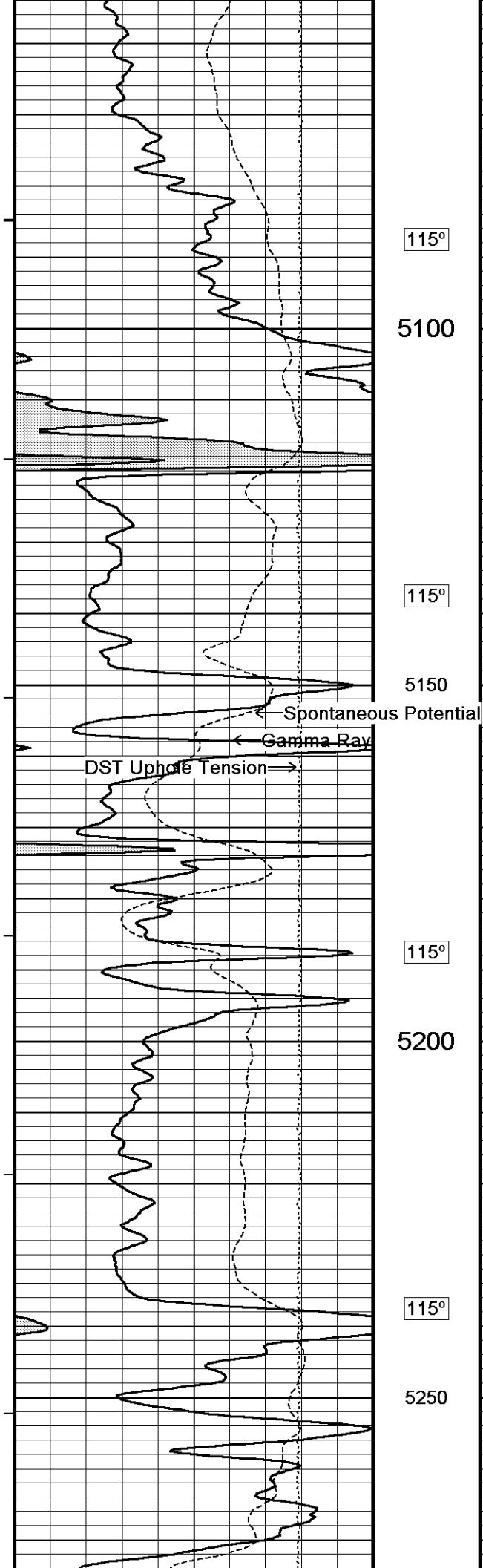
Array Ind. One Res 60 →

Array Ind. One Res 40 →

Shallow FI







115°

5100

115°

5150

Spontaneous Potential

← Gamma Ray

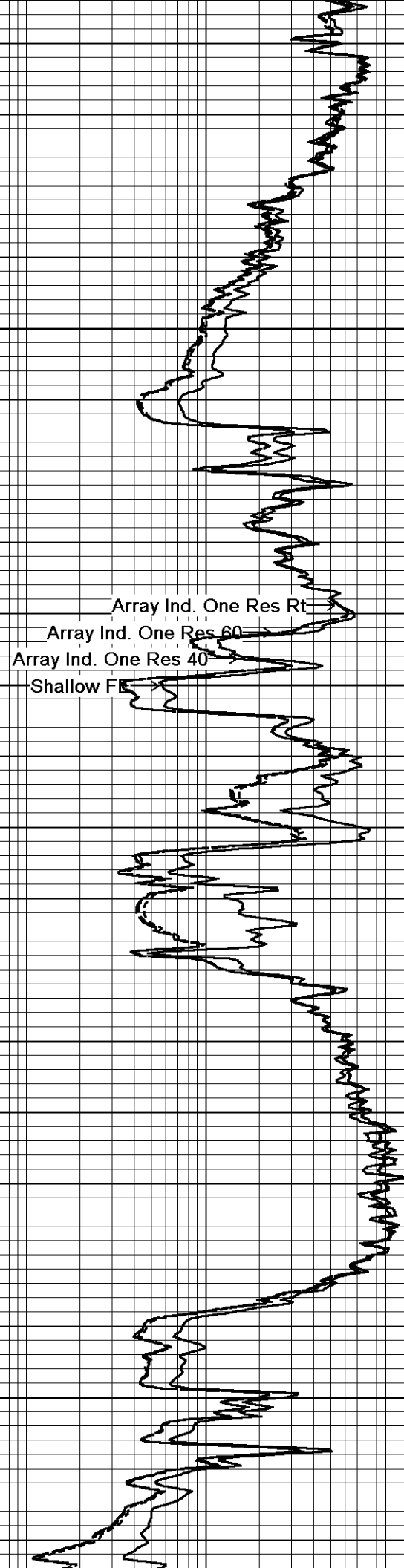
DST Uphole Tension →

115°

5200

115°

5250

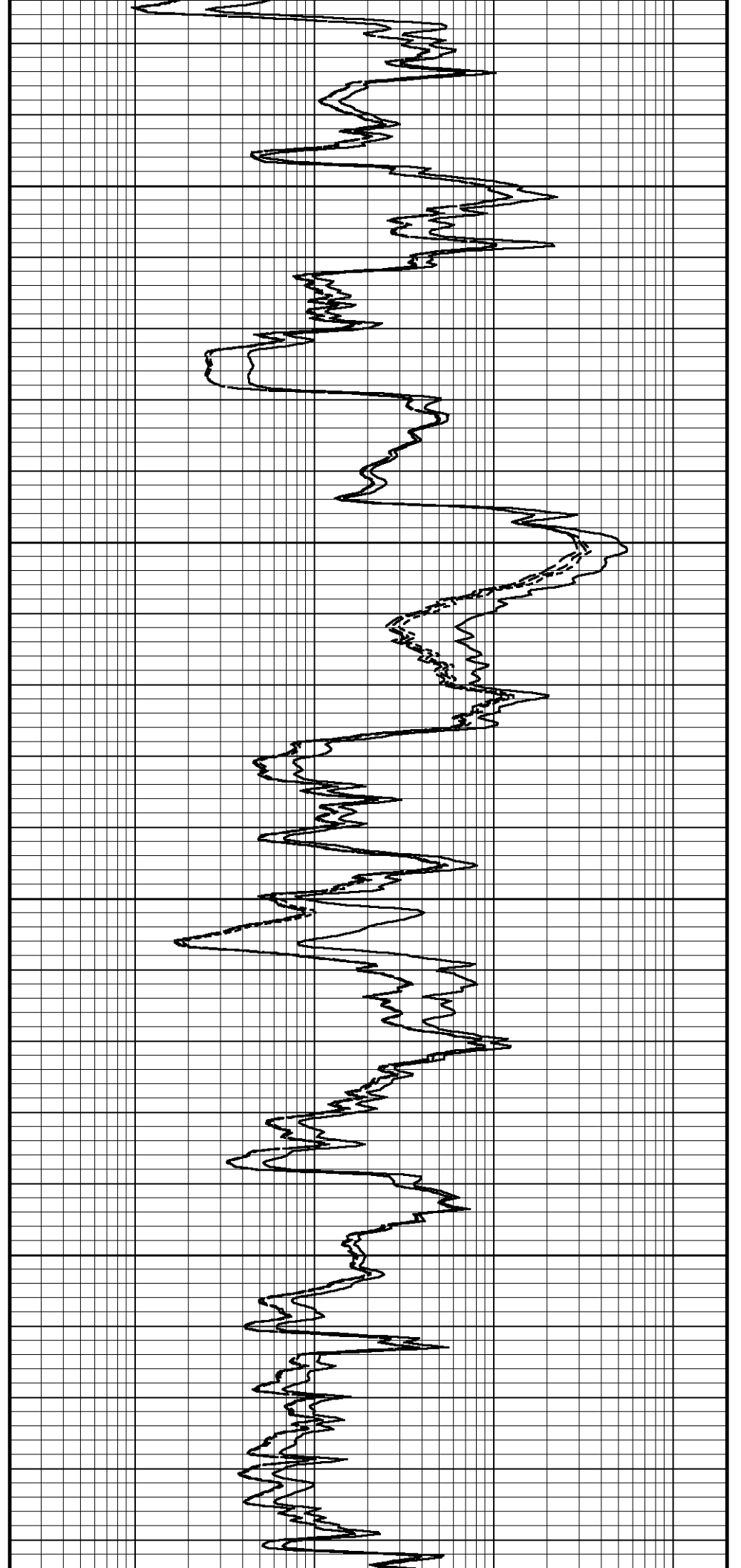
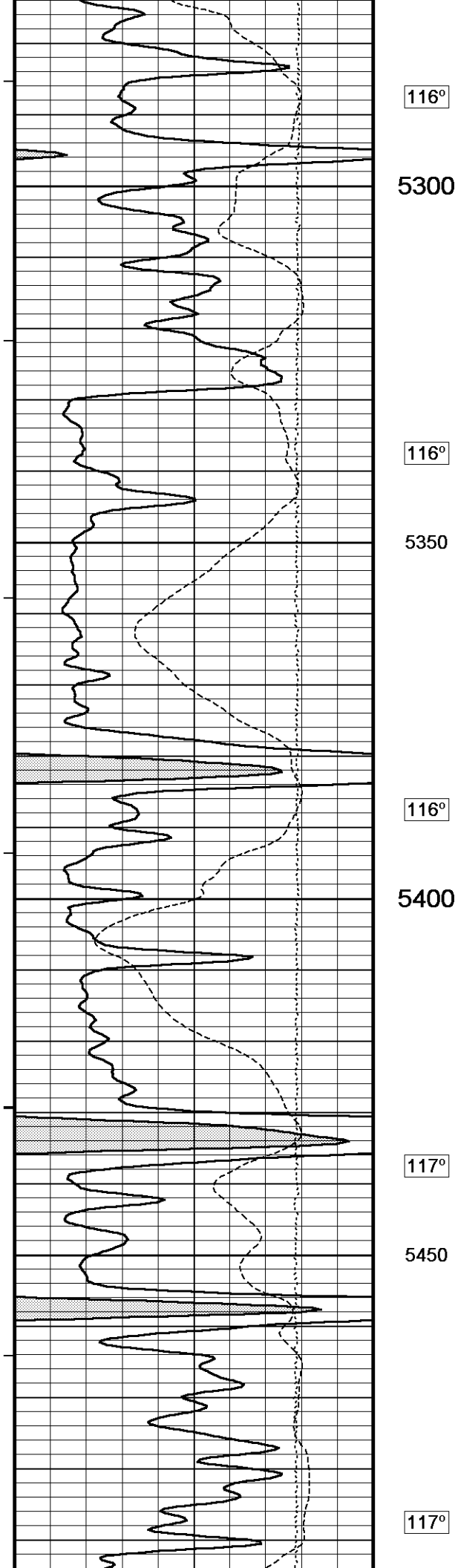


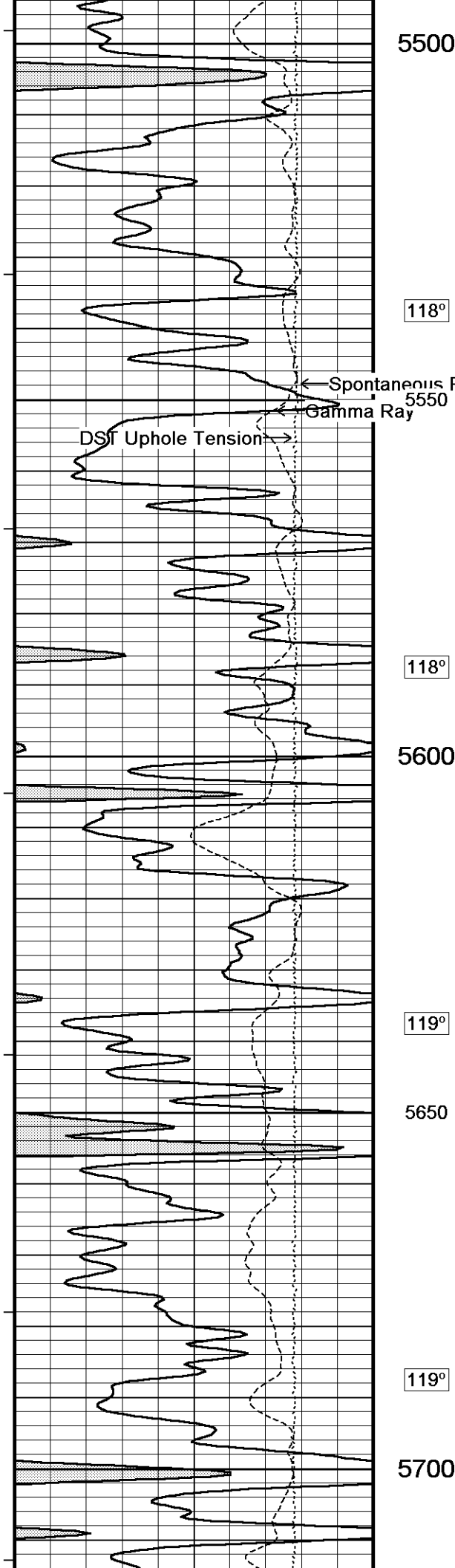
Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow Fm





5500

118°

Spontaneous Potential
Gamma Ray

DSF Uphole Tension

118°

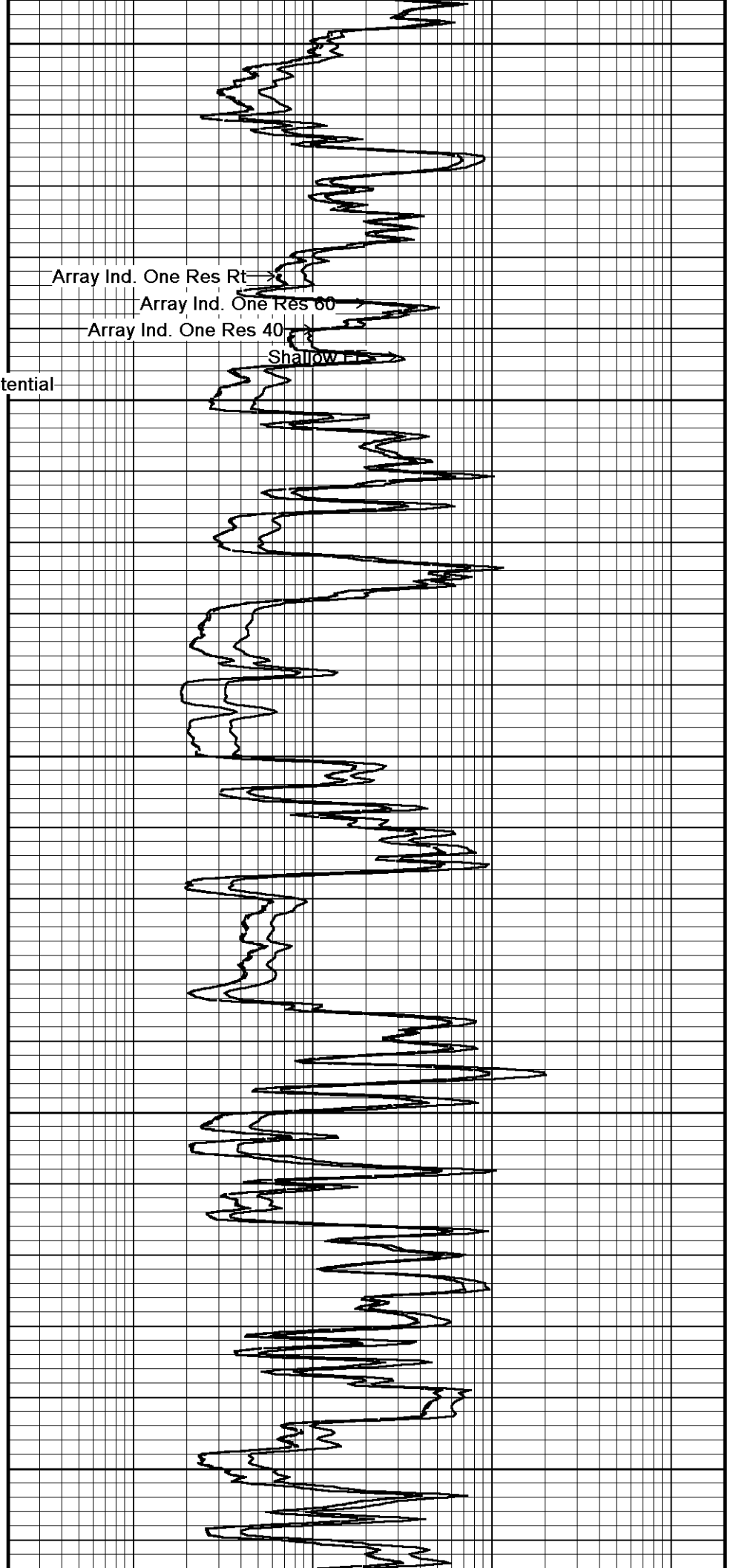
5600

119°

5650

119°

5700

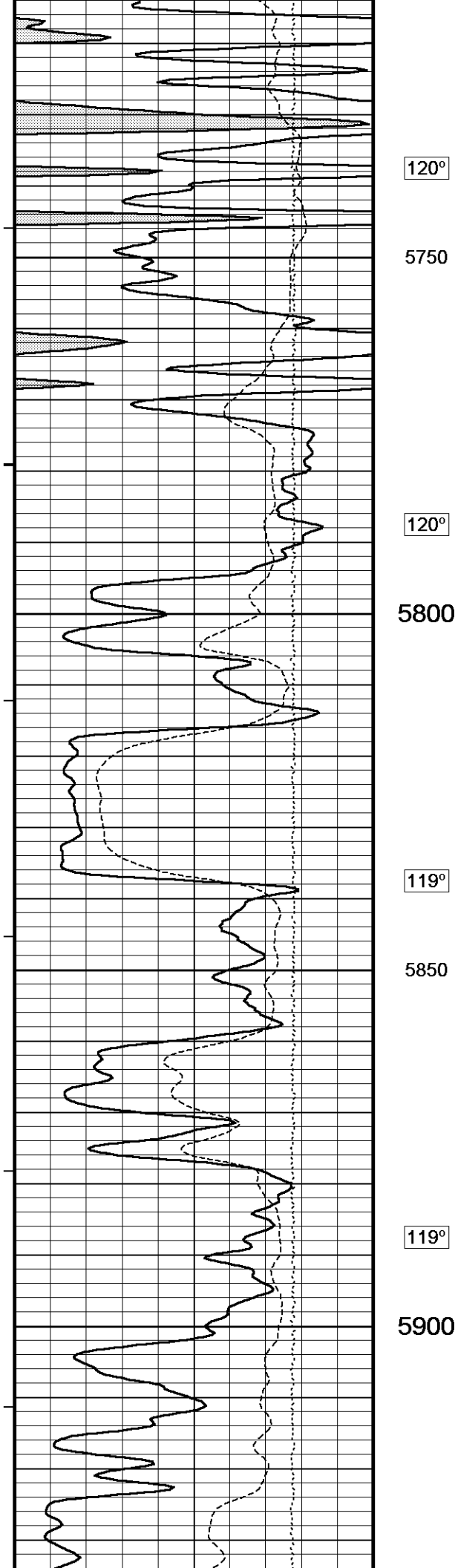


Array Ind. One Res Rt

Array Ind. One Res 60

Array Ind. One Res 40

Shallow FS



120°

5750

120°

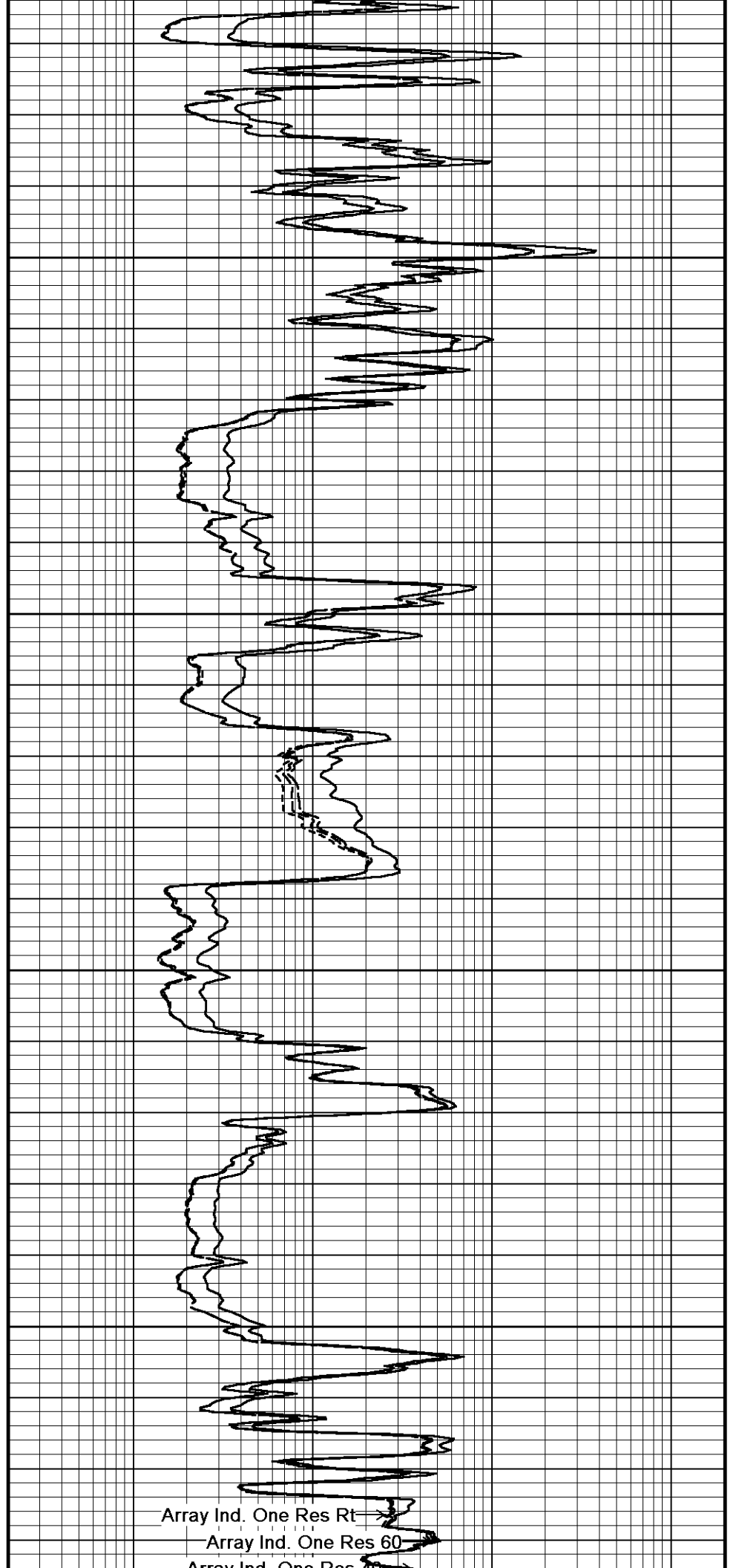
5800

119°

5850

119°

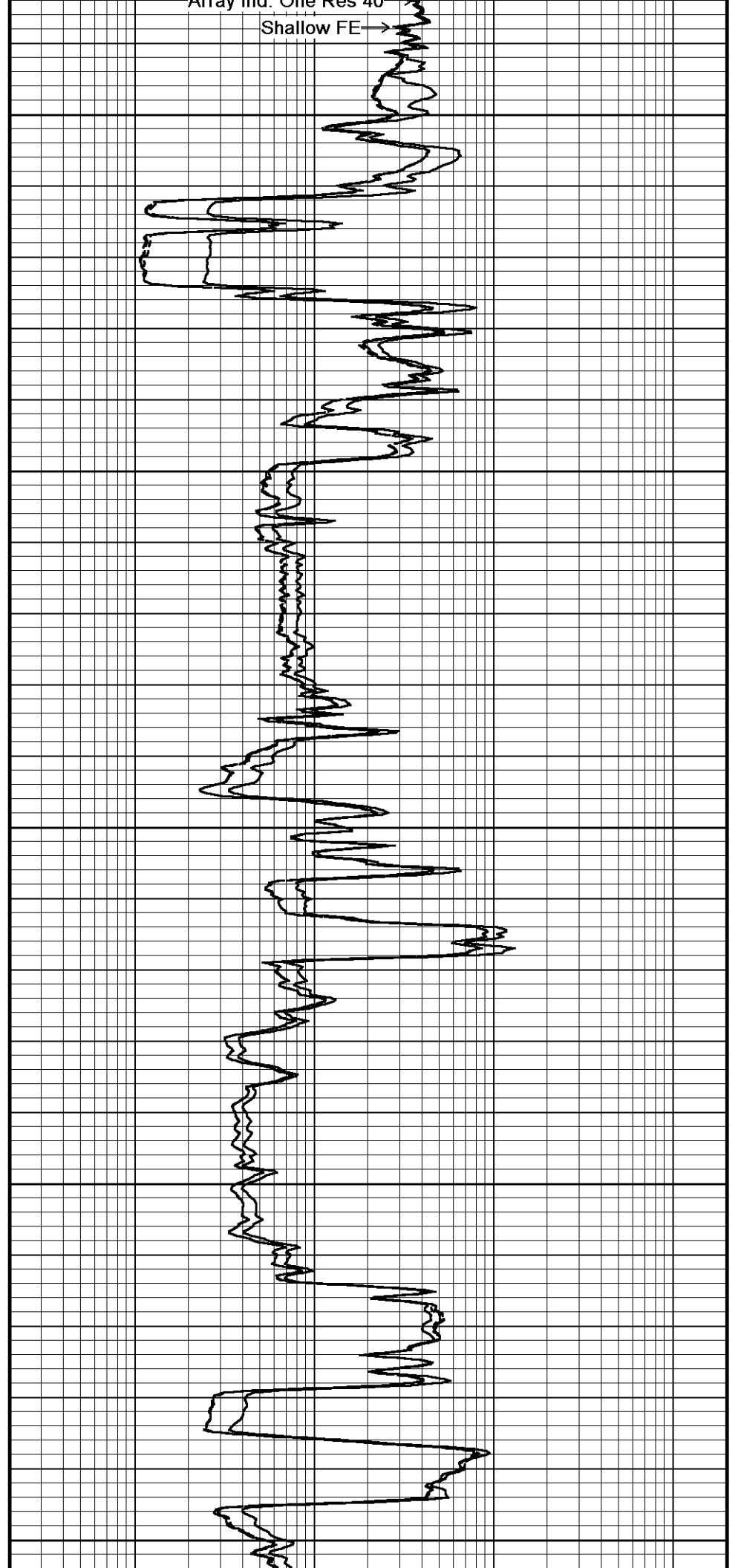
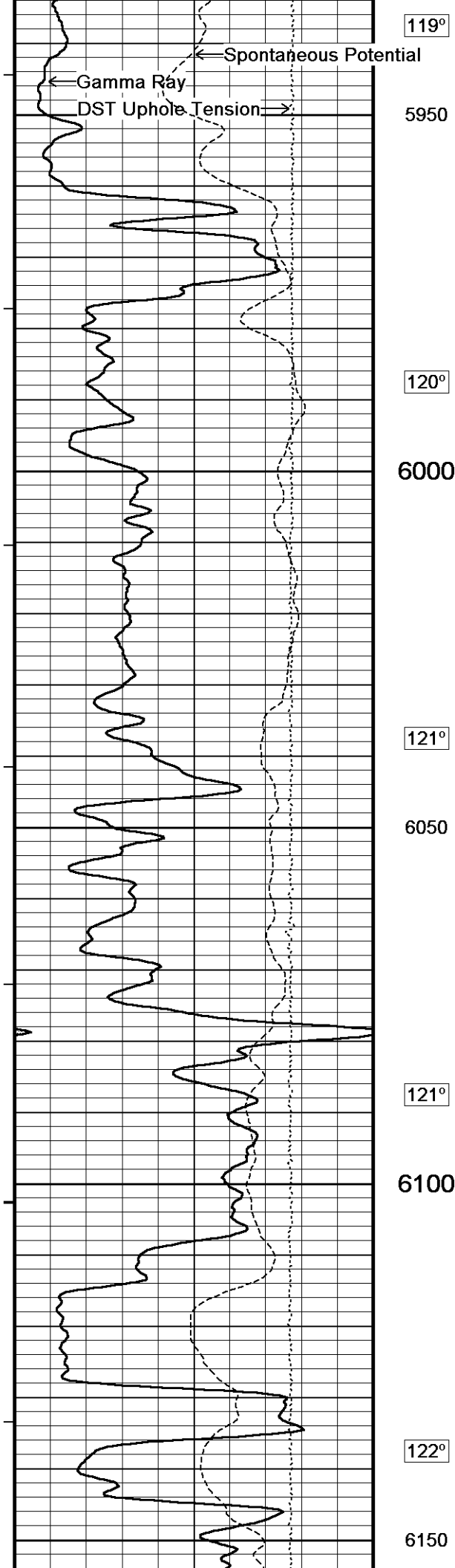
5900

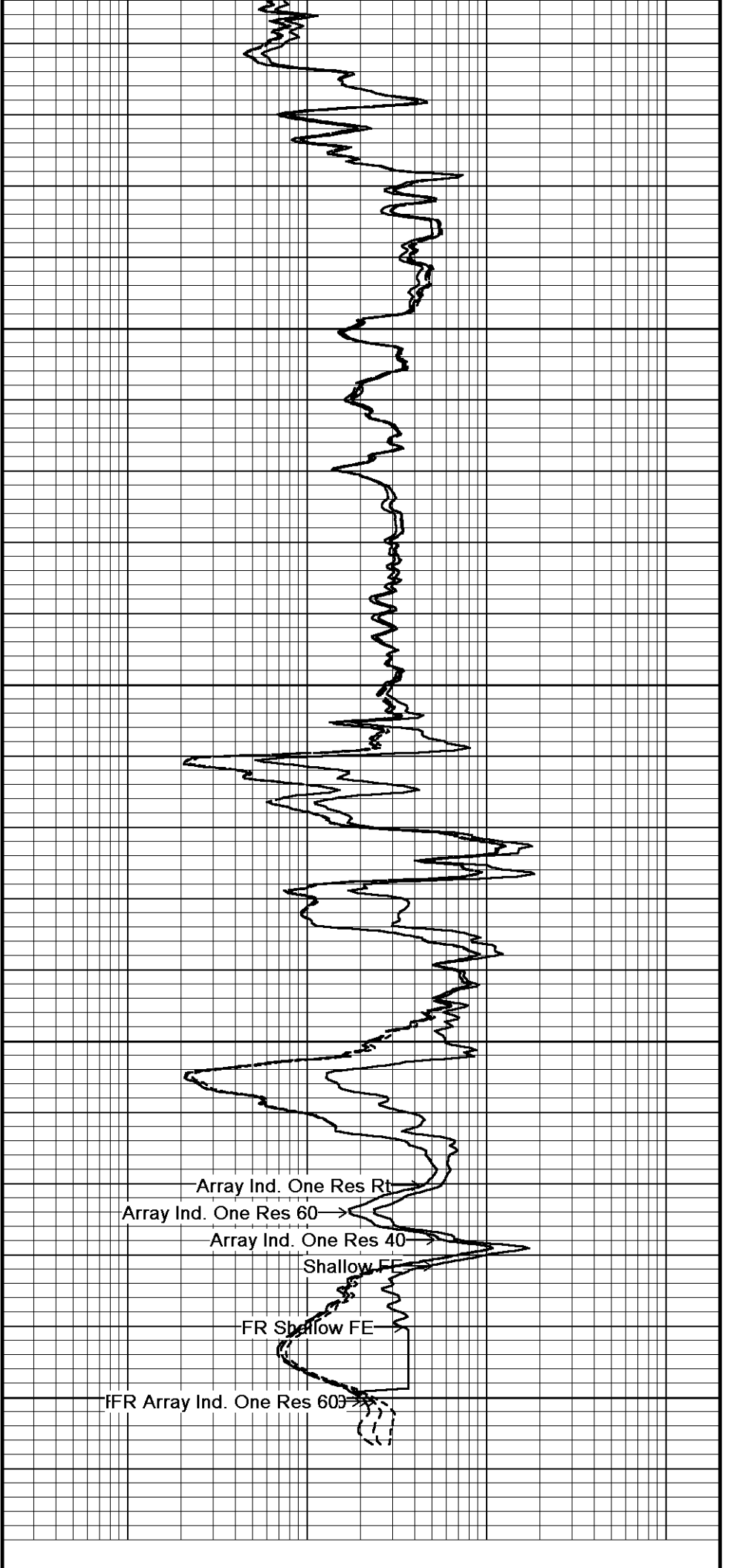
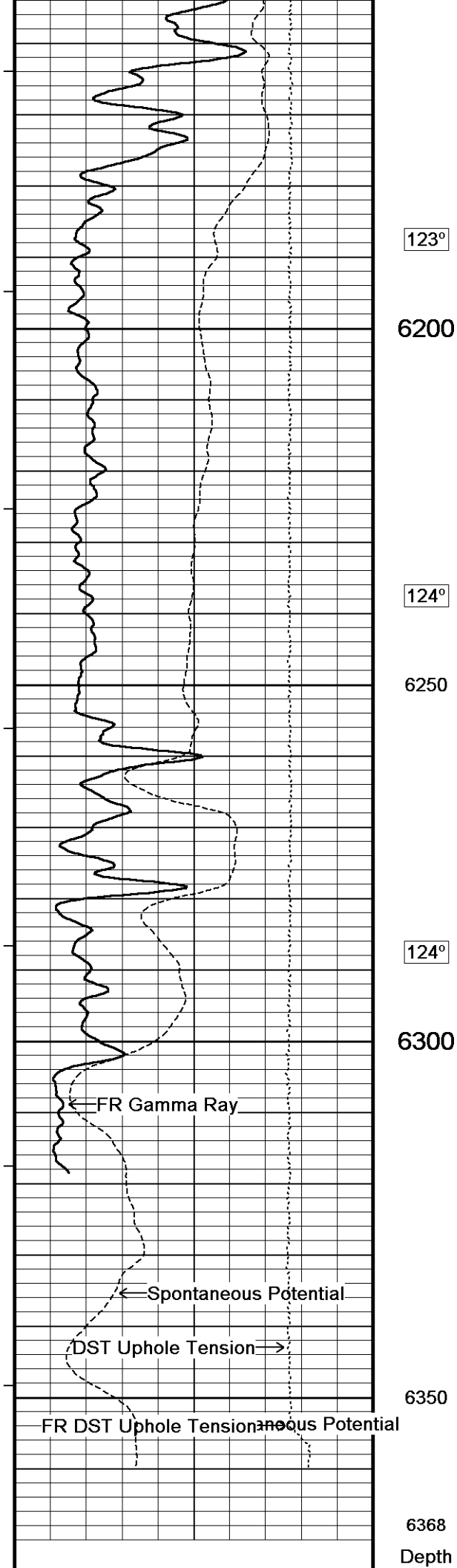


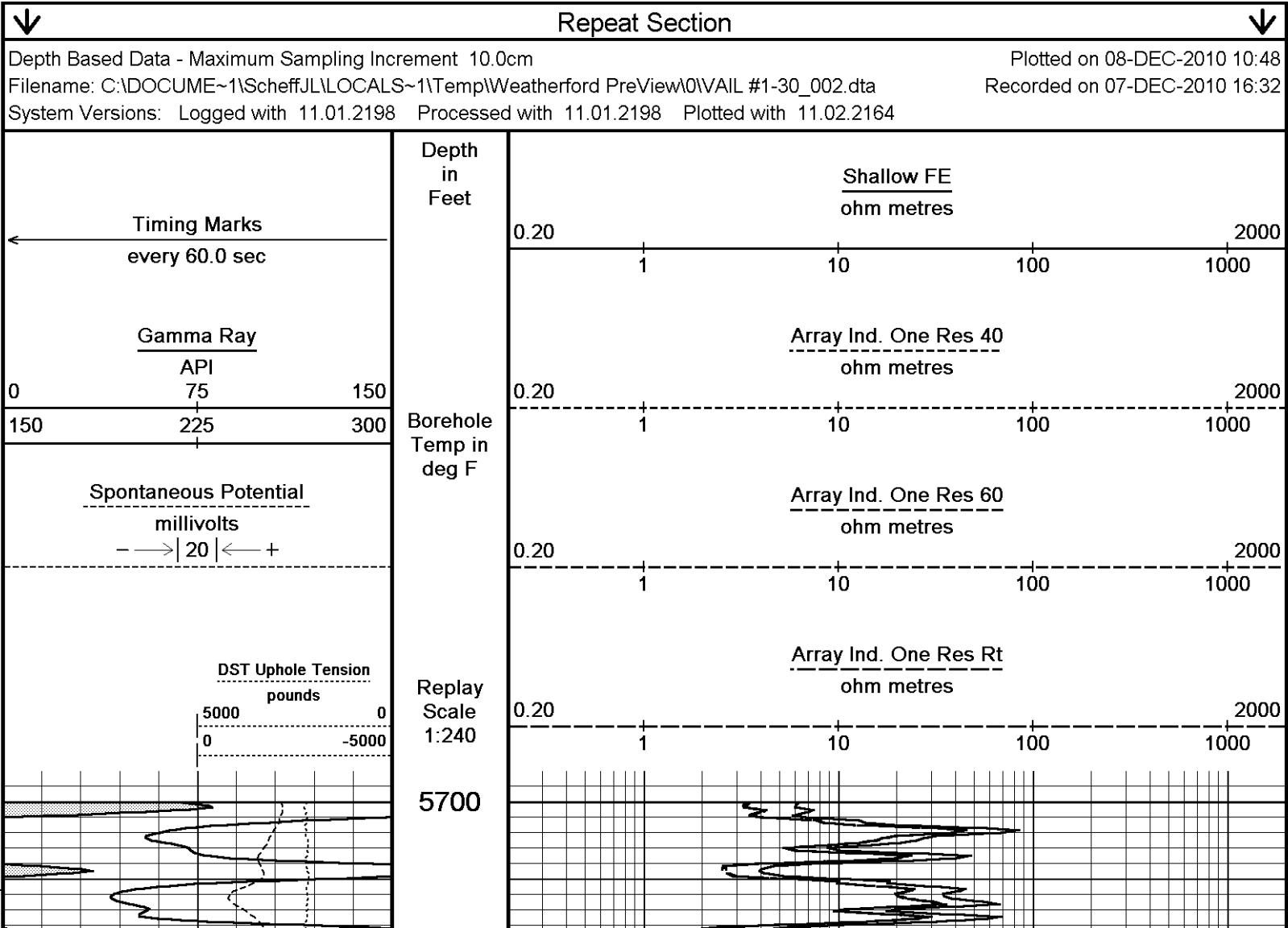
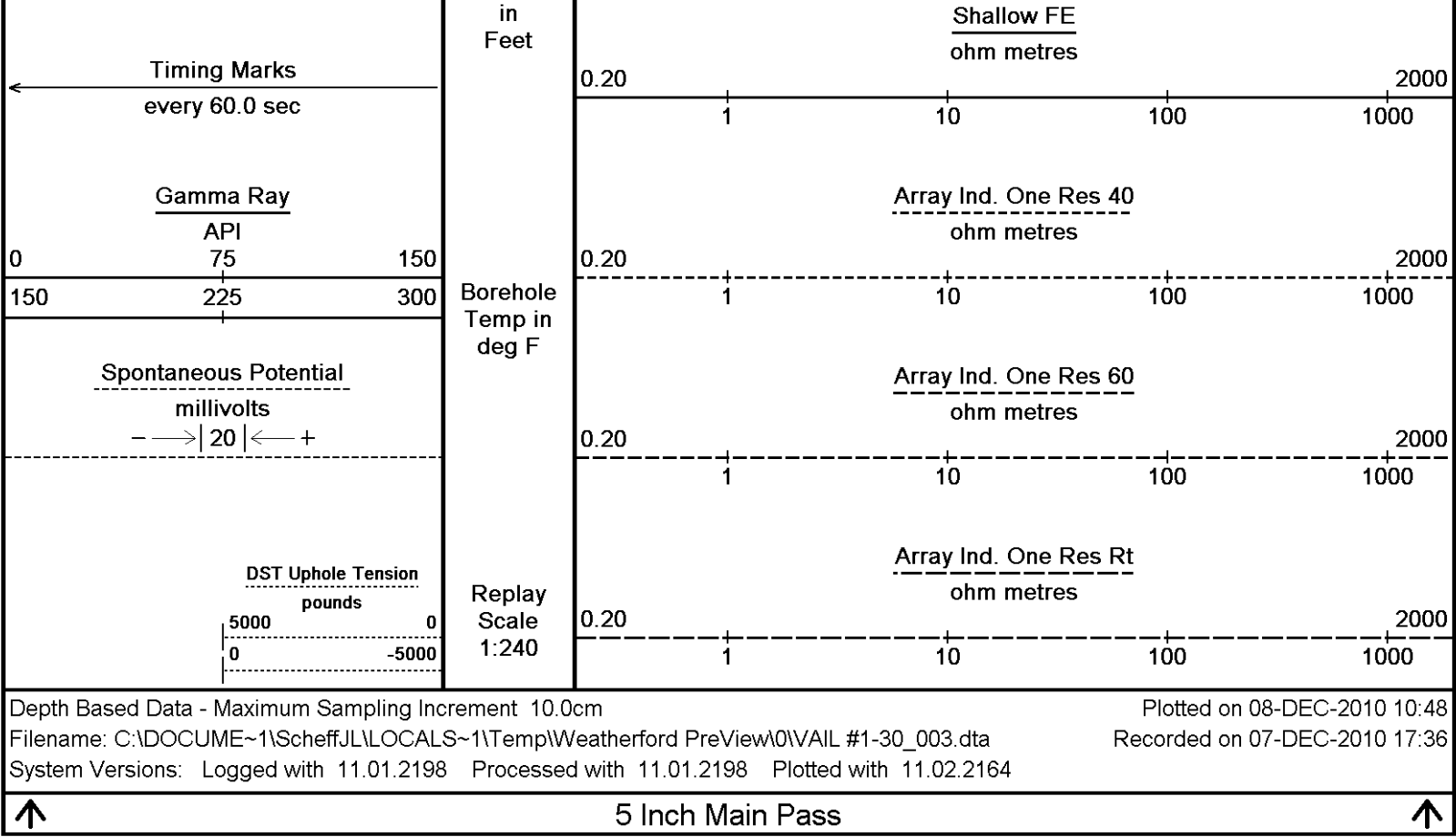
Array Ind. One Res Rt

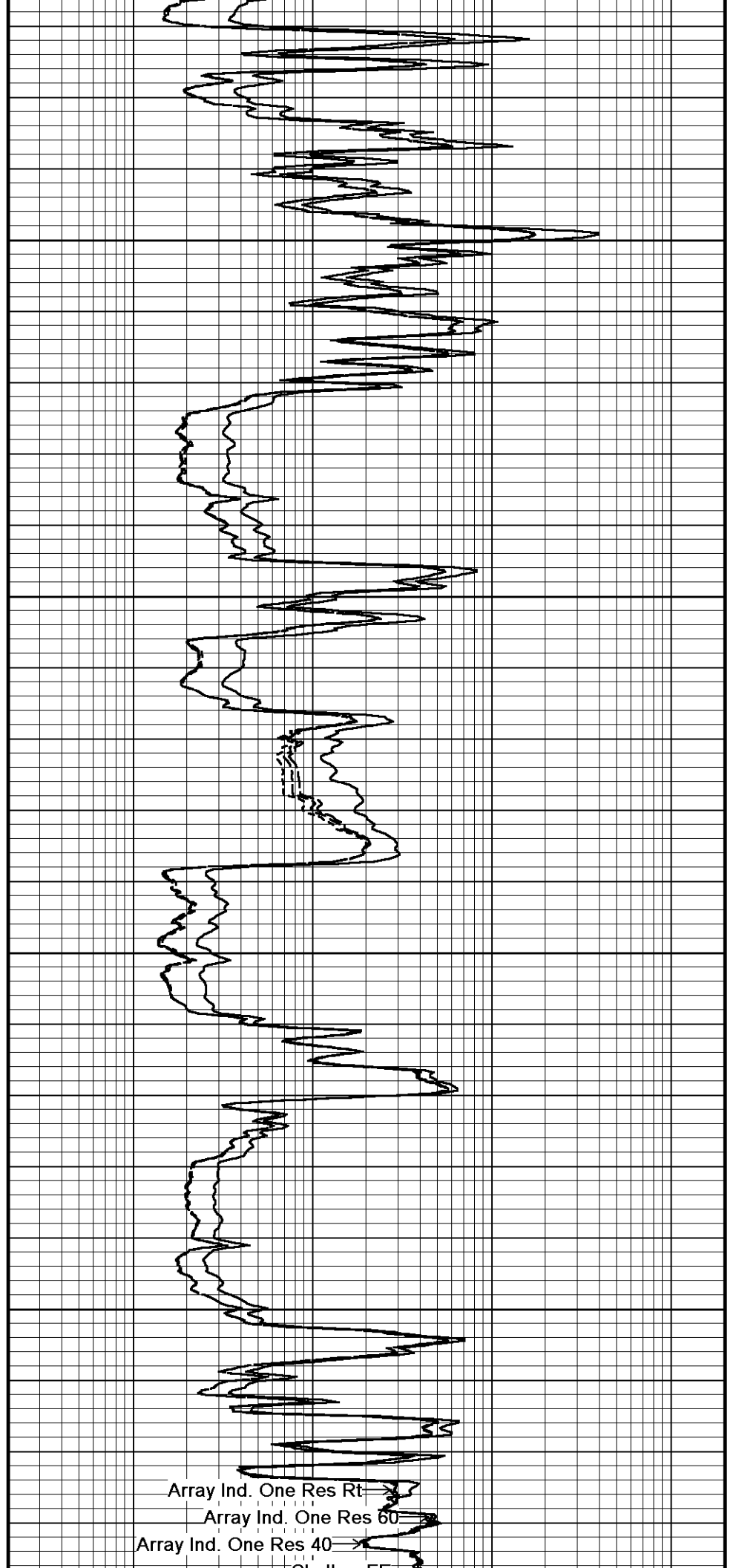
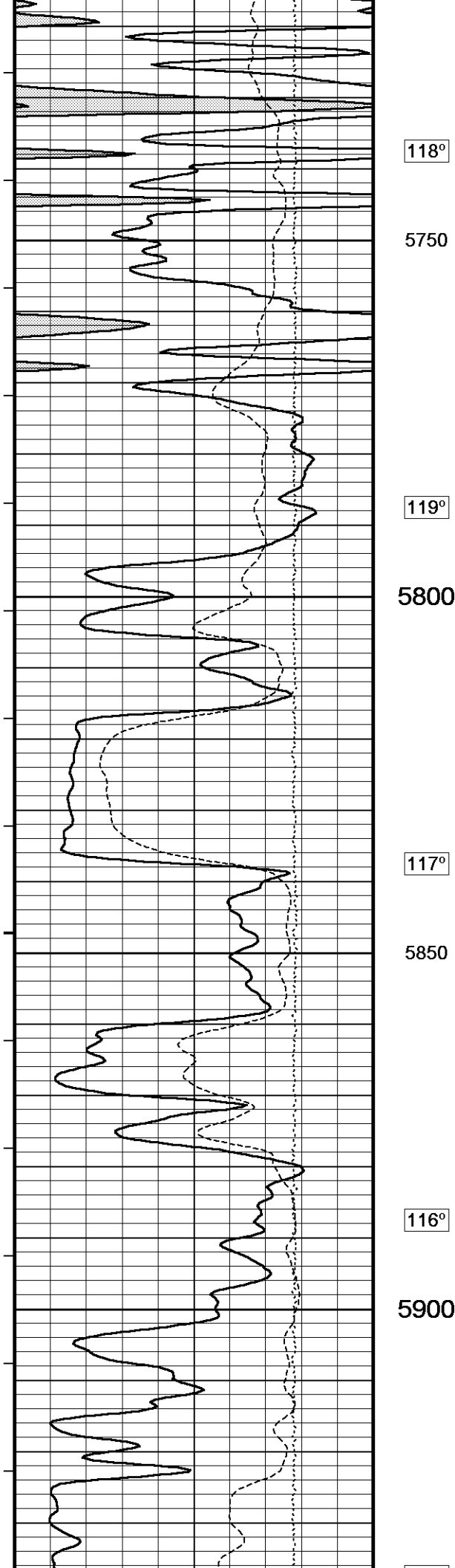
Array Ind. One Res 60

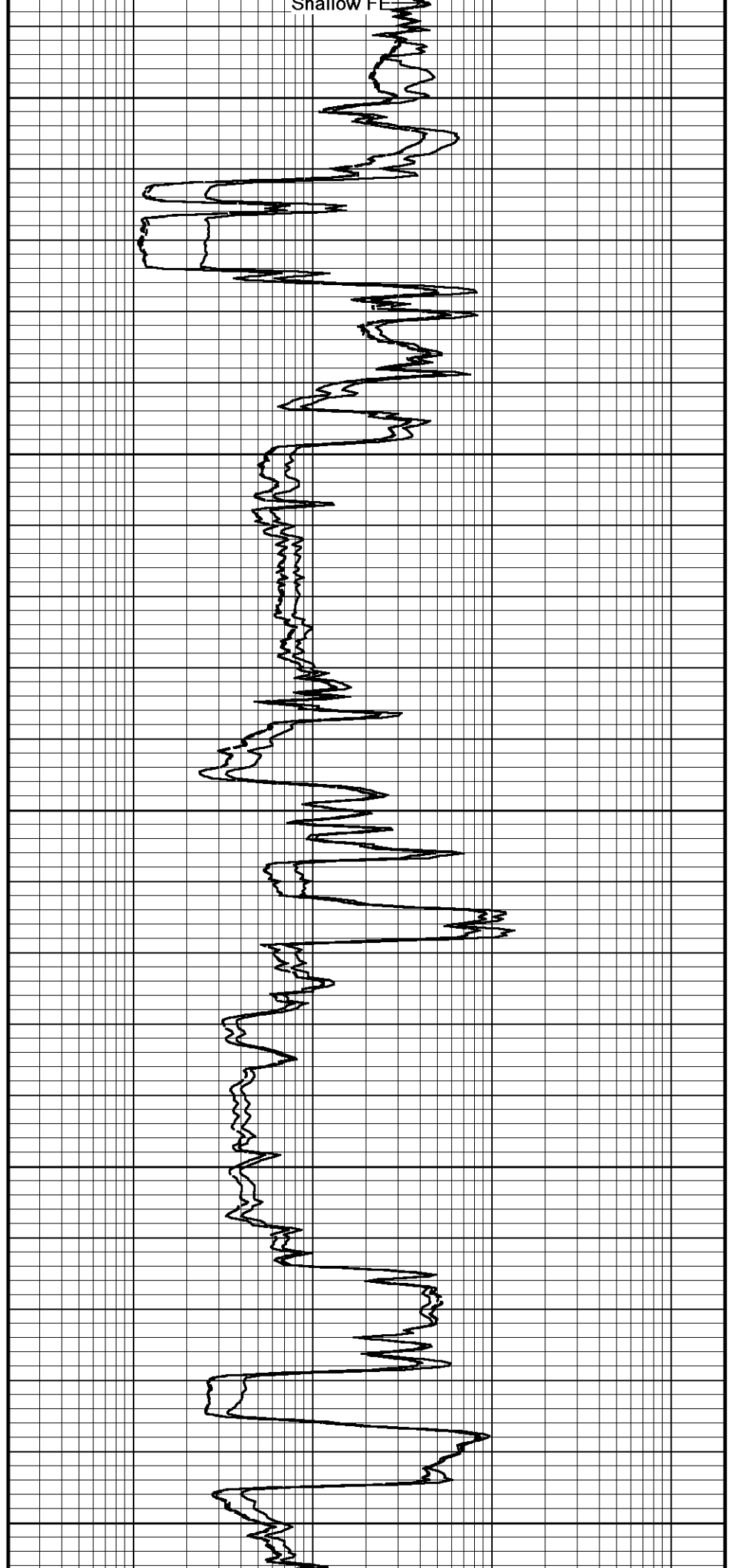
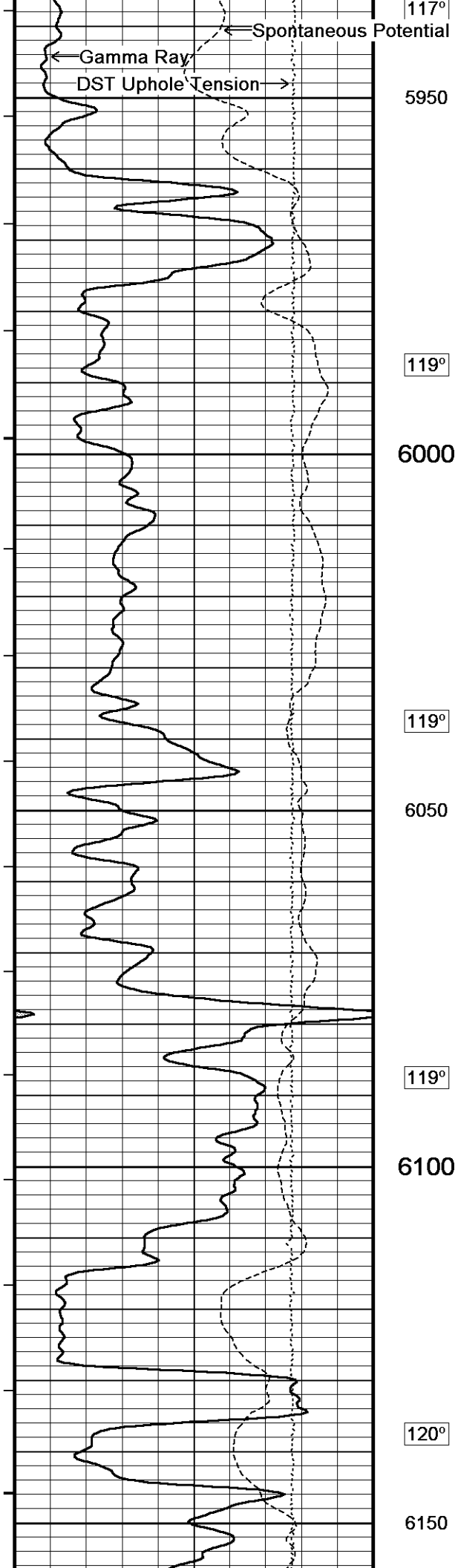
Array Ind. One Res

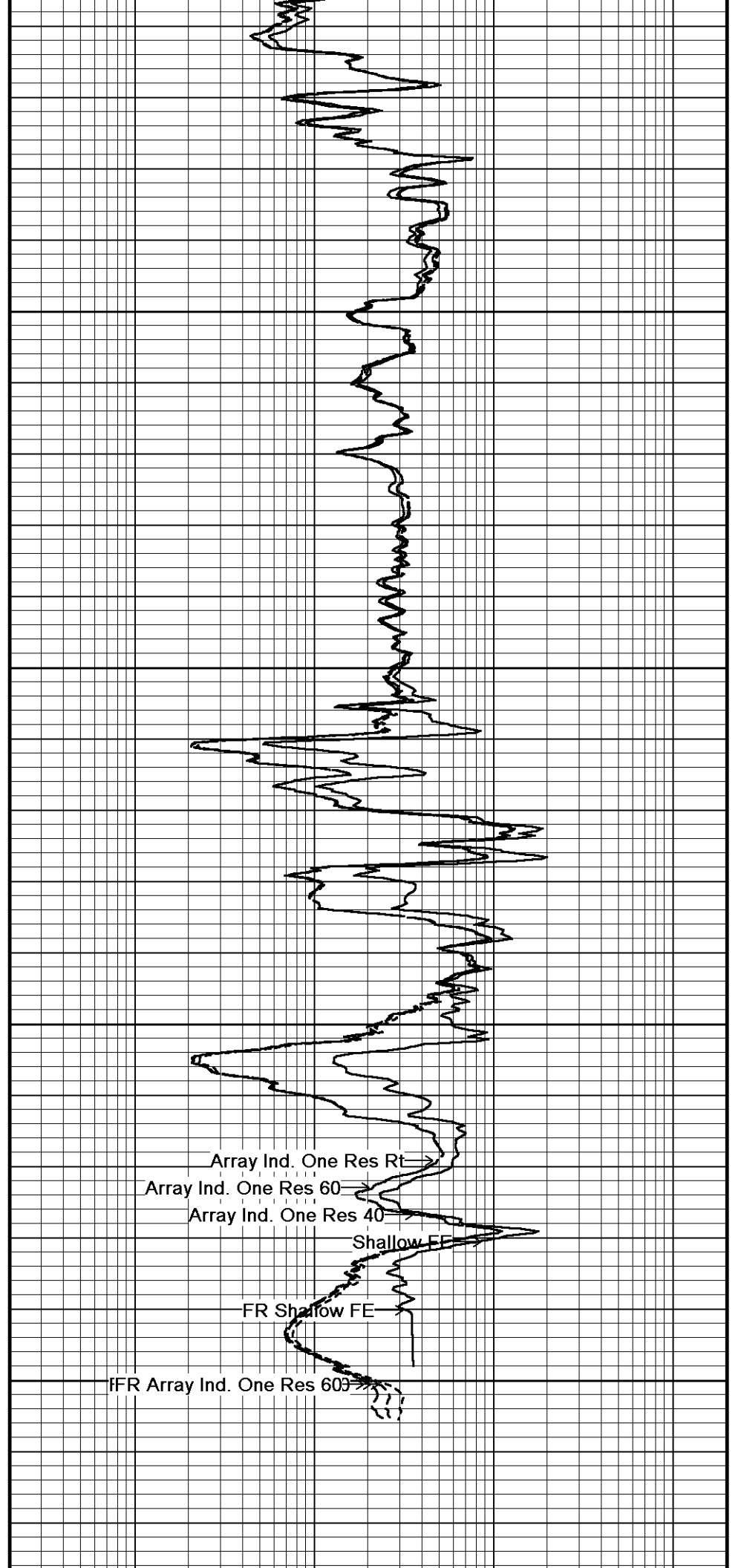
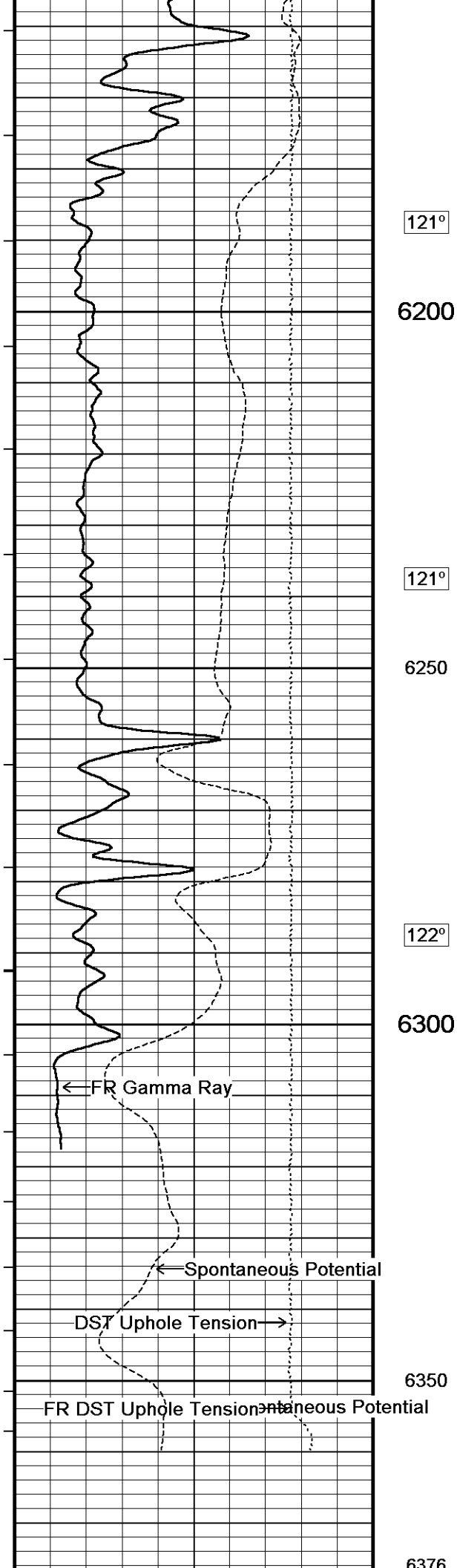


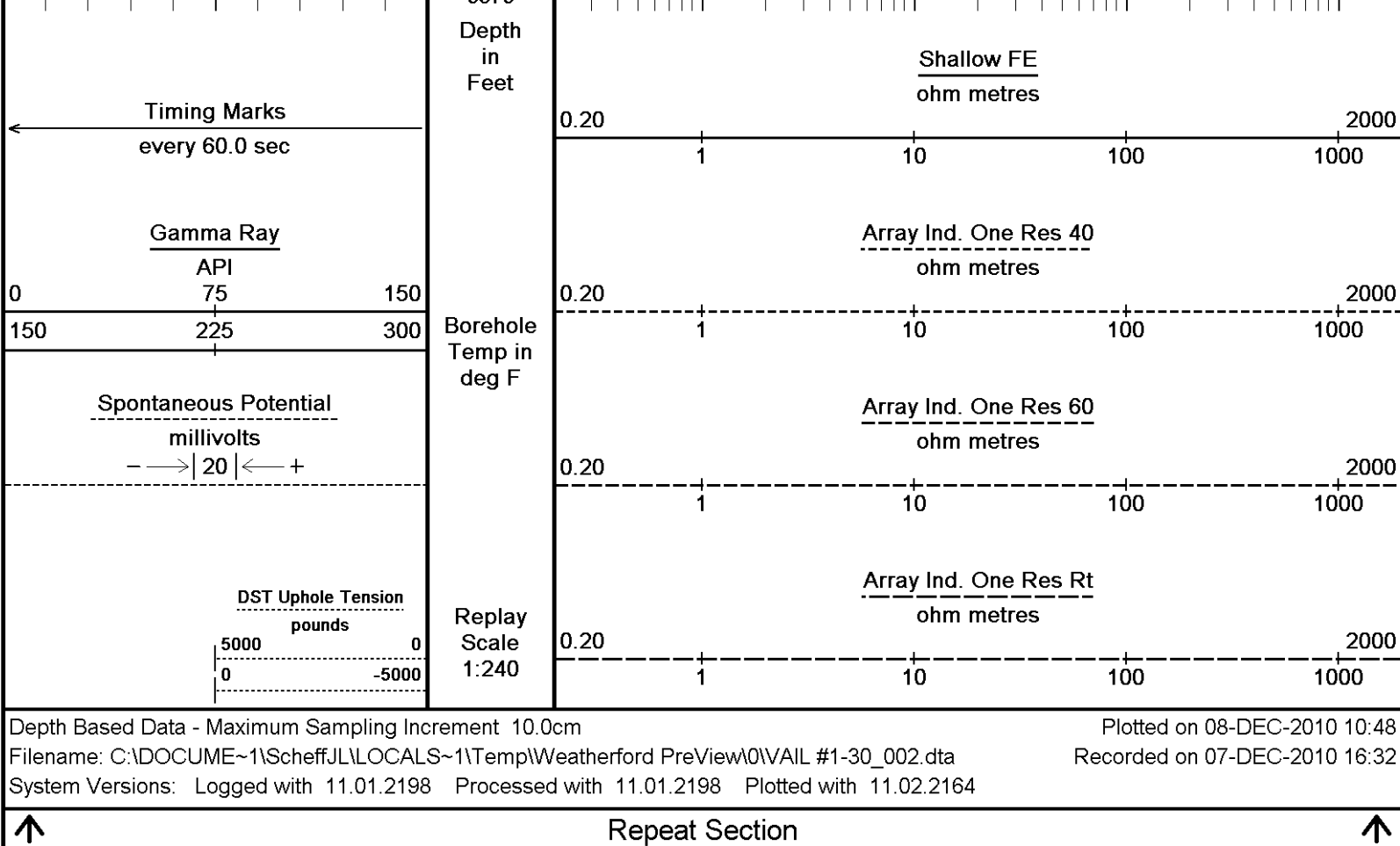












BEFORE SURVEY CALIBRATION		
C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAI #1-30.dta		
General Constants All 000		Last Edited on 07-DEC-2010,14:59
General Parameters		
Mud Resistivity	0.850	ohm-metres
Mud Resistivity Temperature	75.000	degrees F
Water Level	0.000	feet
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	4.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Density Por.	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	1.000	
RWA Constant M	2.000	

DOWNHOLE EQUIPMENT		
C:\DOCUME~1\ScheffJL\LOCALS~1\Temp\Weatherford PreView\0\VAI #1-30.dta		
MCB-A.A 11B Tension Cablehead MCB-A.A 2 LG: 2.40 ft WT: 19.8 lb OD: 2.24 in		
Compact Comms Gamma MCG-B 67 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in		
45.02 ft GRGC - Gamma Ray 42.11 ft CGXT - MCG External Temperature		

Compact Micro-log
MML-A 4 LG: 7.97 ft WT: 81.6 lb OD: 2.24 in

Compact Neutron
MDN-A.B 41 LG: 5.04 ft WT: 50.7 lb OD: 2.24 in

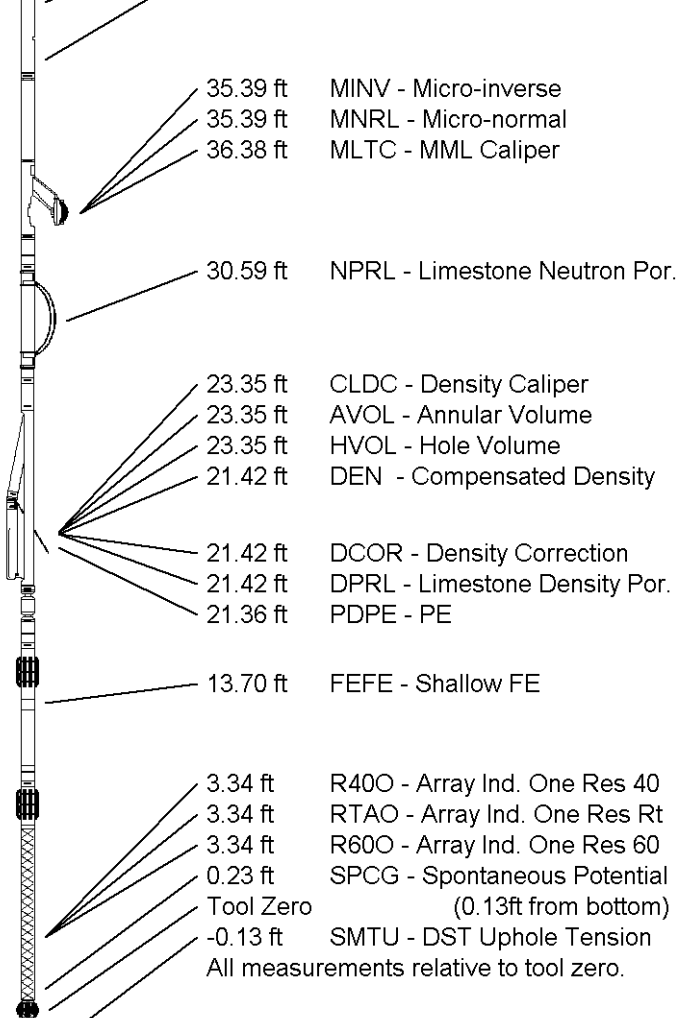
Compact Density/Caliper
MPD-B 61 LG: 9.59 ft WT: 90.4 lb OD: 2.45 in

SKJ-D.A Compact Knuckle Joint
SKJ-D.A 91 LG: 2.17 ft WT: 24.3 lb OD: 2.24 in

Compact Focussed Electric
MFE-A.A 67 LG: 6.03 ft WT: 48.5 lb OD: 2.24 in

Compact Induction
MAI-A.A 188 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 52.70 ft Weight: 427.7 lb



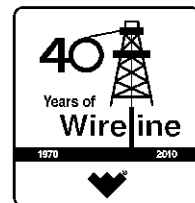
COMPANY O' BRIEN ENERGY
WELL VAIL #1-30
FIELD SINGLEY
PROVINCE/COUNTY MEADE
COUNTRY/STATE U.S.A./KANSAS

Elevation Kelly Bushing	2679.00	feet	First Reading	6351.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6351.00	feet
Elevation Ground Level	2667.00	feet	Depth Logger	6354.00	feet



ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

Weatherford®



Weatherford		ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG	
COMPANY	O' BRIEN ENERGY	WELL	VAIL #1-30
FIELD	SINGLEY	PROVINCE/COUNTY	MEADE
COUNTRY/STATE	U.S.A./KANSAS	LOCATION	760' FSL & 1320' FWL
SEC	33S	RE	29W
ASR Number	15-118-21277	Other Services	MPDION
ASR Number	15-118-21277	MAINF	
Permanent Datum O.L. Elevation 2667 feet		Log Measured From Kelly @ 12 FEET above Permanent Datum	
Drilling Measured From Kelly			
Date	07-DEC-2010		
Run Number	ONE		
Depth Driller	6351.00	feet	
Depth Logger	6354.00	feet	
First Reading	6351.00	feet	
Last Reading	1534.00	feet	
Casing Driller	1534.00	feet	
Casing Logger	1534.00	feet	
Bit Size	7.880	inches	
Hole Fluid Type	CHEMIC-AL		
Density/Viscosity	9.20 lb/USg	61.00 CP	
pH / Fluid Loss	9.50	FLOWLINE	
Sample Source	0.85 @ 75.0	min-m	
Run @ Measured Temp	0.85 @ 75.0	min-m	
Run @ Measured Temp	1.02 @ 75.0	min-m	
Source Rmt / Rmc	CALC		
Rm @ BHT	0.52 @ 12.0	min-m	
Time Since Circulation	4 HOURS		
Max Recorded Temp	122.00	deg F	
Equipment Name	COMPACT		
Equipment / Base	13006	LIB	
Recorded By	SHANNIN LIT		
Witnessed By	ROGER PEARSON		
ASR Number	3524634		
LIB			

40
Wells

PRODUCTION
FOCUSSED
IC LOG

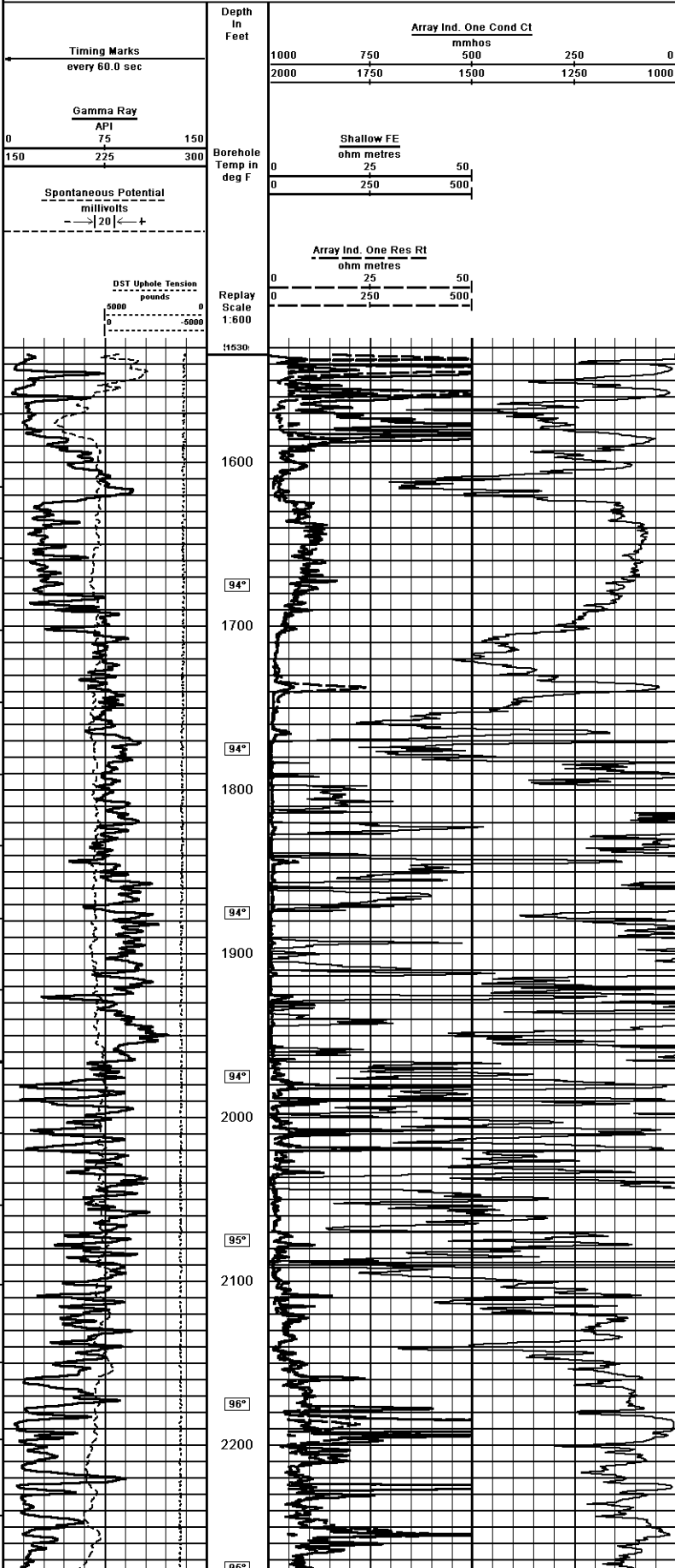
Well:
H
2679.00
2679.00
2697.00

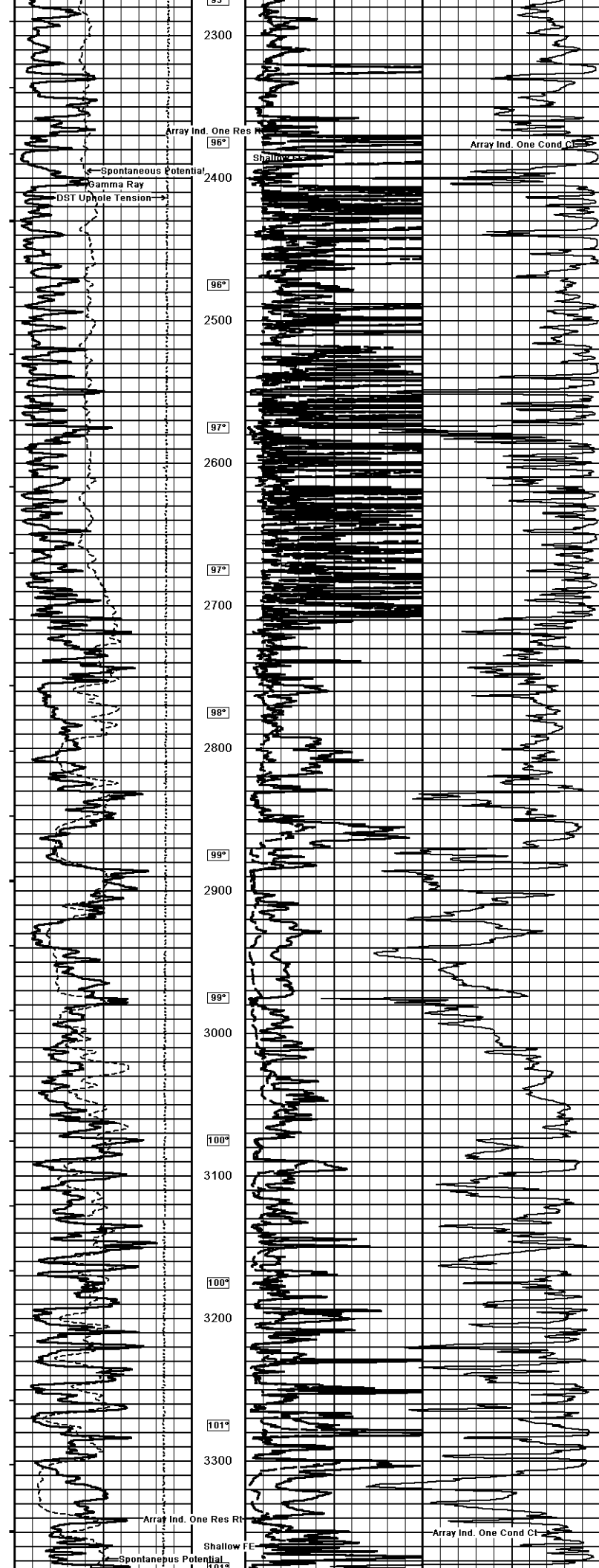
Test
2679.00
2679.00
2697.00

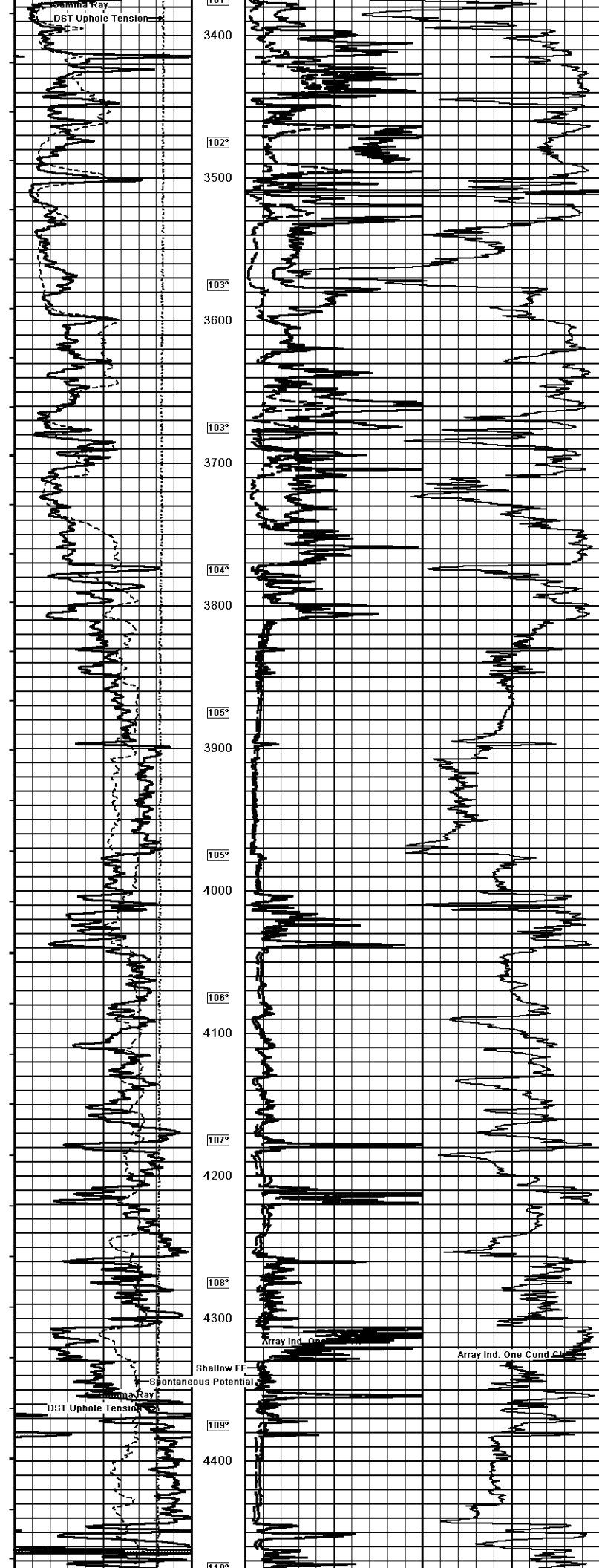
WELL DEBENTHAM
3-312

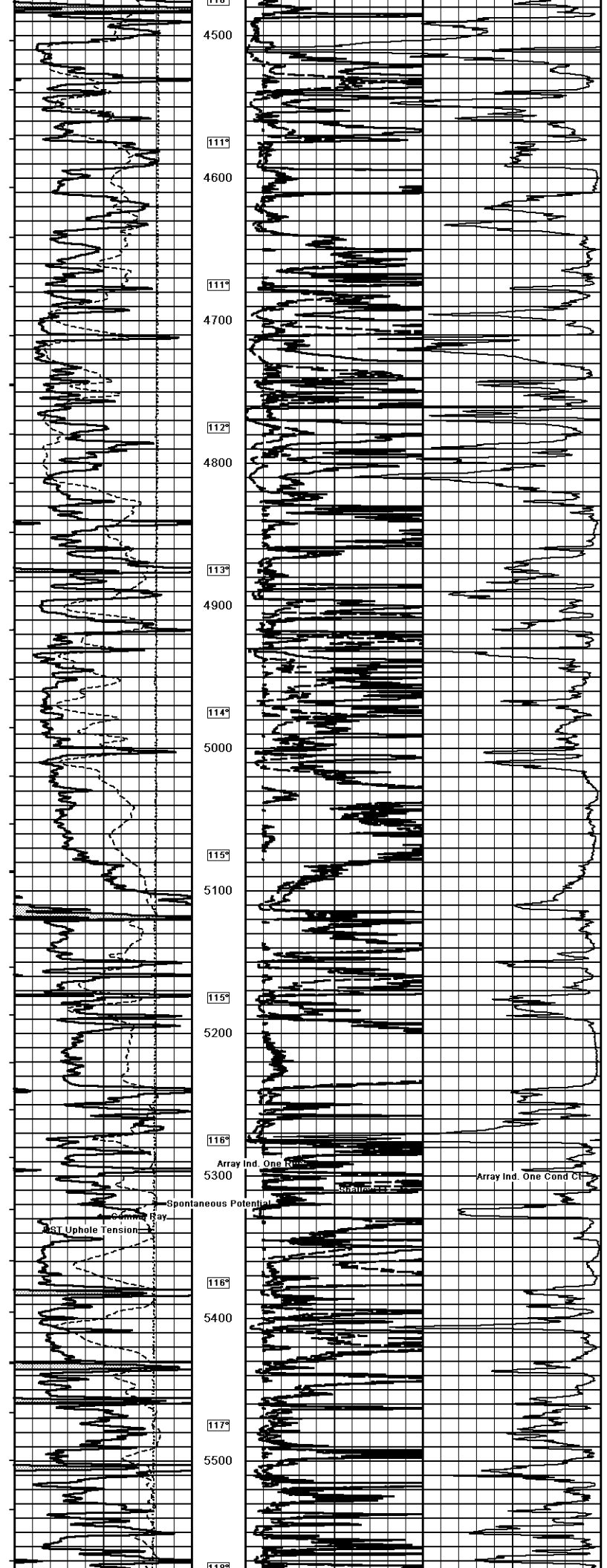
One Inch Main Pass

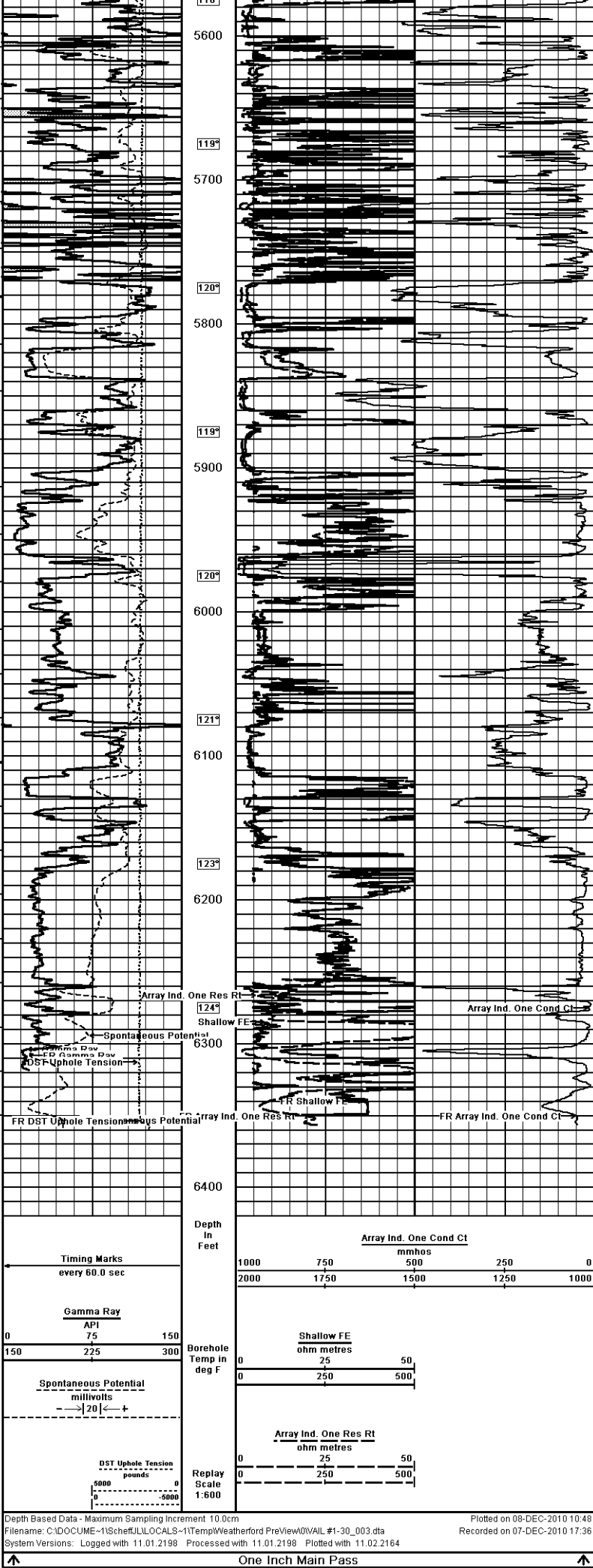
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 08-DEC-2010 10:48
Filename: C:\DOCUME~1\Scheffler\LOCALS~1\Temp\Weatherford PreView\01VAIL #1-30_003.dta
Recorded on 07-DEC-2010 17:36
System Versions: Logged with 11.01.2198 Processed with 11.01.2198 Plotted with 11.02.2164











COMPANY	O' BRIEN ENERGY				
WELL	VAIL #1-30				
FIELD	SINGLEY				
PROVINCE/COUNTY	MEADE				
COUNTRY/STATE	U.S.A./KANSAS				
Elevation Kelly Bushing	2679.00	feet	First Reading	6351.00	feet
Elevation Drill Floor	2678.00	feet	Depth Driller	6351.00	feet
Elevation Ground Level	2667.00	feet	Depth Logger	6354.00	feet
			ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG		
					